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GLOBAL DATA MONITORING REPORT

July, 1996

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 has been replaced by statistics for GOES-8 and GOES-9.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 $m\ s^{-1}$ (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
CG2248	ALL	MSLP	SUR	38	38	100	0.0	0.0	0.0
CYJZ	ALL	MSLP	SUR	23	1	4	1.2	-6.9	7.0
C6FA6	ALL	MSLP	SUR	41	1	2	0.9	-5.9	6.0
C6LI6	ALL	MSLP	SUR	33	1	3	1.7	10.5	10.6
ELIG5	ALL	MSLP	SUR	28	0	0	0.9	4.1	4.2
ELRE5	ALL	MSLP	SUR	60	0	0	2.4	4.5	5.1
EUJV	ALL	MSLP	SUR	72	2	3	1.6	9.5	9.7
OUKV	ALL	MSLP	SUR	65	0	0	1.8	-4.0	4.3
PDWT	ALL	MSLP	SUR	77	1	1	2.0	-5.1	5.5
P3YS5	ALL	MSLP	SUR	33	0	0	2.1	4.4	4.8
SYMK	ALL	MSLP	SUR	25	0	0	1.2	4.6	4.7
S6CL	ALL	MSLP	SUR	27	1	4	0.9	5.9	6.0
TFLE	ALL	MSLP	SUR	27	0	0	1.4	-5.6	5.8
UCJJ	ALL	MSLP	SUR	25	0	0	3.4	-5.6	6.6
UTTT	ALL	MSLP	SUR	30	0	0	1.0	-5.6	5.7
UUKB	ALL	MSLP	SUR	47	0	0	2.0	4.4	4.8
VCKQ	ALL	MSLP	SUR	20	13	65	5.8	-3.5	6.8
VCQL	ALL	MSLP	SUR	20	0	0	1.6	-5.9	6.1
VCTK	ALL	MSLP	SUR	22	21	95	0.0	-14.8	14.8
VODM	ALL	MSLP	SUR	76	63	83	4.9	2.9	5.6
VOPM	ALL	MSLP	SUR	29	15	52	4.4	-6.2	7.6
V2SA	ALL	MSLP	SUR	20	5	25	1.7	-11.6	11.7
3FGQ3	ALL	MSLP	SUR	30	0	0	1.6	6.3	6.5
3FZW	ALL	MSLP	SUR	26	0	0	1.3	5.8	6.0
WIND SPEED									
C6YY	ALL	SPEED	SUR	47	0	0	1.7	5.2	5.5
DLCX	ALL	SPEED	SUR	41	0	0	3.0	5.7	6.5
DQFV	ALL	SPEED	SUR	28	0	0	3.3	6.2	7.0
DQQQ	ALL	SPEED	SUR	33	0	0	4.9	5.1	7.1
ELDT6	ALL	SPEED	SUR	40	0	0	4.1	5.5	6.8
ELMF9	ALL	SPEED	SUR	37	0	0	1.8	5.3	5.6
FNVA	ALL	SPEED	SUR	70	0	0	2.7	5.0	5.7
NNUD	ALL	SPEED	SUR	21	0	0	4.2	6.2	7.5
OUSE6	ALL	SPEED	SUR	53	1	2	4.5	5.3	7.0
OXRA6	ALL	SPEED	SUR	51	0	0	3.4	5.3	6.3
PCUI	ALL	SPEED	SUR	45	0	0	5.9	5.7	8.2
PDHF	ALL	SPEED	SUR	39	0	0	5.8	6.0	8.4
PDUX	ALL	SPEED	SUR	33	0	0	5.9	7.0	9.2
PFFA	ALL	SPEED	SUR	54	0	0	6.7	8.8	11.1
PFPZ	ALL	SPEED	SUR	76	6	8	6.7	7.5	10.0
PGDL	ALL	SPEED	SUR	30	0	0	4.8	5.4	7.3
PGFO	ALL	SPEED	SUR	38	0	0	5.4	6.1	8.1
PGND	ALL	SPEED	SUR	40	1	2	6.0	5.8	8.3
PGQI	ALL	SPEED	SUR	28	0	0	4.8	5.4	7.2
PJMJ	ALL	SPEED	SUR	20	0	0	6.5	7.6	10.0
PJQI	ALL	SPEED	SUR	49	1	2	6.0	8.1	10.1
PJVY	ALL	SPEED	SUR	25	0	0	3.8	7.4	8.3
VNAE	ALL	SPEED	SUR	27	0	0	6.0	10.0	11.7
VRUX3	ALL	SPEED	SUR	32	0	0	4.5	14.3	14.9
XYKX	ALL	SPEED	SUR	21	0	0	2.0	5.5	5.8
YJQK4	ALL	SPEED	SUR	49	0	0	4.4	6.2	7.6
3EXQ9	ALL	SPEED	SUR	32	0	0	7.0	9.2	11.5
9MSM	ALL	SPEED	SUR	36	0	0	4.9	7.6	9.1
9MTZ	ALL	SPEED	SUR	47	0	0	3.5	6.5	7.4
WIND DIRECTION									
C6JG7	ALL	DIRN.	SUR	28	0	0	48.0	-31.7	57.5
OXME2	ALL	DIRN.	SUR	25	0	0	61.7	30.8	69.0
PFCZ	ALL	DIRN.	SUR	25	3	12	69.9	-46.6	84.0
SVQH	ALL	DIRN.	SUR	22	0	0	39.2	-30.6	49.7

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
S6BJ	ALL	DIRN.	SUR	21	0	0	23.2	33.9	41.1
VLN4720	ALL	DIRN.	SUR	23	0	0	28.5	39.8	48.9
3EXQ9	ALL	DIRN.	SUR	32	0	0	43.5	31.0	53.5
32303	ALL	DIRN.	SUR	47	0	0	38.9	31.7	50.1
41001	ALL	DIRN.	SUR	97	0	0	25.2	-32.2	40.9
43001	ALL	DIRN.	SUR	54	0	0	70.7	39.7	81.1
43301	ALL	DIRN.	SUR	39	0	0	87.4	46.7	99.1
44007	ALL	DIRN.	SUR	39	0	0	32.7	-34.2	47.3
44013	ALL	DIRN.	SUR	52	0	0	30.3	-30.3	42.8
44153	ALL	DIRN.	SUR	75	0	0	28.6	-36.9	46.7
45001	ALL	DIRN.	SUR	68	0	0	28.8	-30.0	41.5
45002	ALL	DIRN.	SUR	55	0	0	36.0	-31.6	47.9
45003	ALL	DIRN.	SUR	48	0	0	34.5	-31.8	46.9
45004	ALL	DIRN.	SUR	50	0	0	18.2	-30.5	35.5
45006	ALL	DIRN.	SUR	44	0	0	33.5	-36.7	49.7
46027	ALL	DIRN.	SUR	46	0	0	35.6	-36.9	51.3
46045	ALL	DIRN.	SUR	29	0	0	37.3	65.3	75.3
46053	ALL	DIRN.	SUR	53	0	0	35.8	-45.6	57.9
51006	ALL	DIRN.	SUR	54	0	0	77.9	37.0	86.2
51007	ALL	DIRN.	SUR	79	0	0	25.6	31.1	40.2
51015	ALL	DIRN.	SUR	60	0	0	41.9	34.4	54.2
51307	ALL	DIRN.	SUR	64	0	0	88.1	37.0	95.6
62165	ALL	DIRN.	SUR	56	0	0	100.4	-32.3	105.4
63103	ALL	DIRN.	SUR	28	0	0	109.6	27.4	113.0

FIGURE 1

AVAILABILITY – SHIP/SYNOP – JULY 1996
MAIN HOURS ONLY
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18711

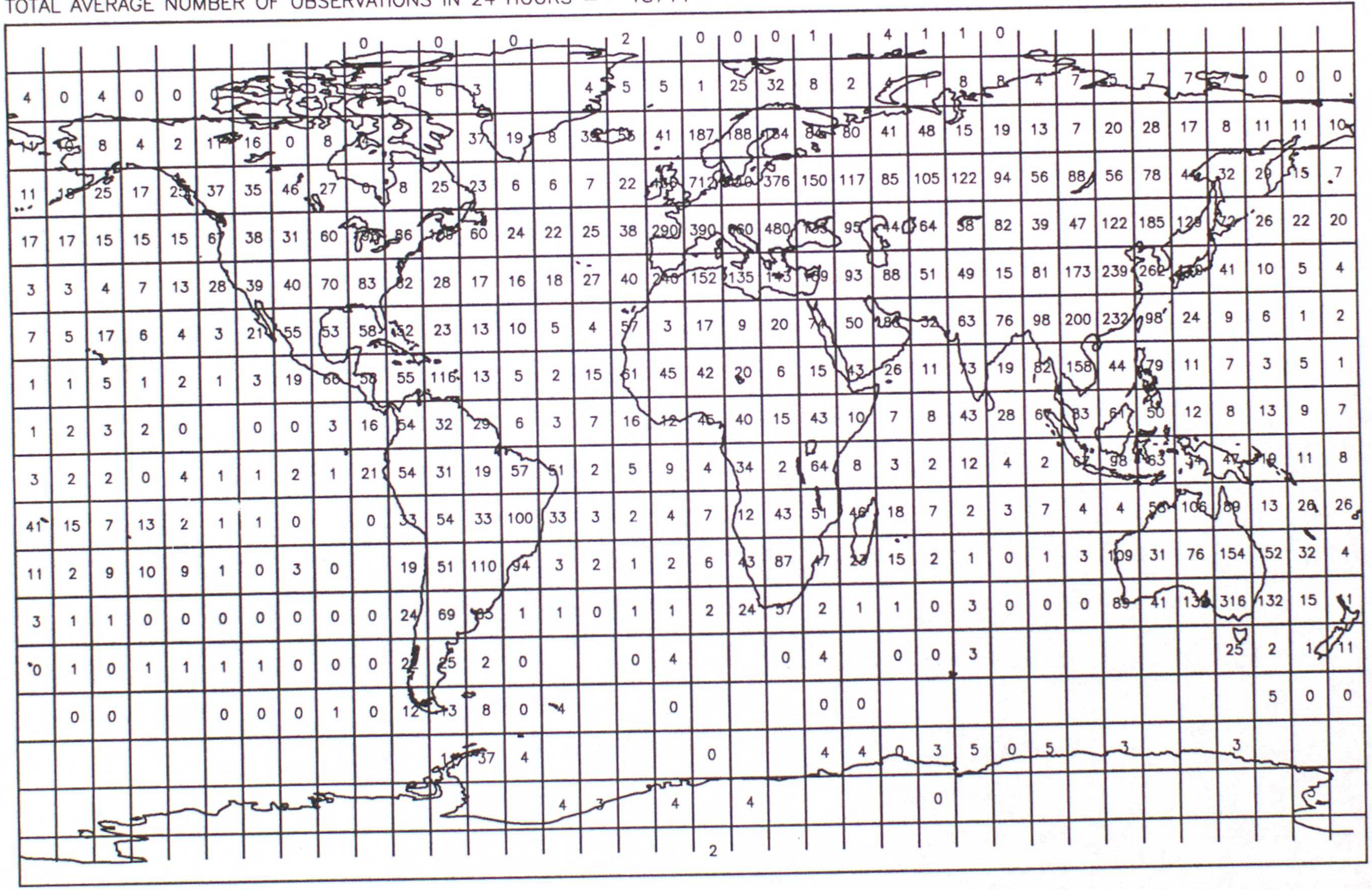


TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 m s^{-1}	(vector wind)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.¦bias¦	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
17901	-36.5	11.2	ALL	MSLP	SUR	87	87	100	0.0	0.0	0.0
23909	7.2	81.3	ALL	MSLP	SUR	29	4	14	8.1	2.6	8.5
25547	86.5	-27.0	ALL	MSLP	SUR	378	0	0	2.0	-4.6	5.0
51637	22.2	-163.7	ALL	MSLP	SUR	53	0	0	2.2	9.9	10.1
54901	-39.6	-166.4	ALL	MSLP	SUR	87	26	30	3.0	1.5	3.4
55905	-44.6	146.0	ALL	MSLP	SUR	126	0	0	1.6	-4.3	4.6
56605	-36.3	109.7	ALL	MSLP	SUR	152	27	18	6.4	-0.3	6.4
61522	38.7	1.4	ALL	MSLP	SUR	84	0	0	0.9	-4.9	5.0
71591	-68.0	-41.6	ALL	MSLP	SUR	535	3	1	2.8	6.4	7.0
WIND SPEED											
46558	36.4	-131.9	ALL	SPEED	SUR	35	0	0	1.7	-6.4	6.6

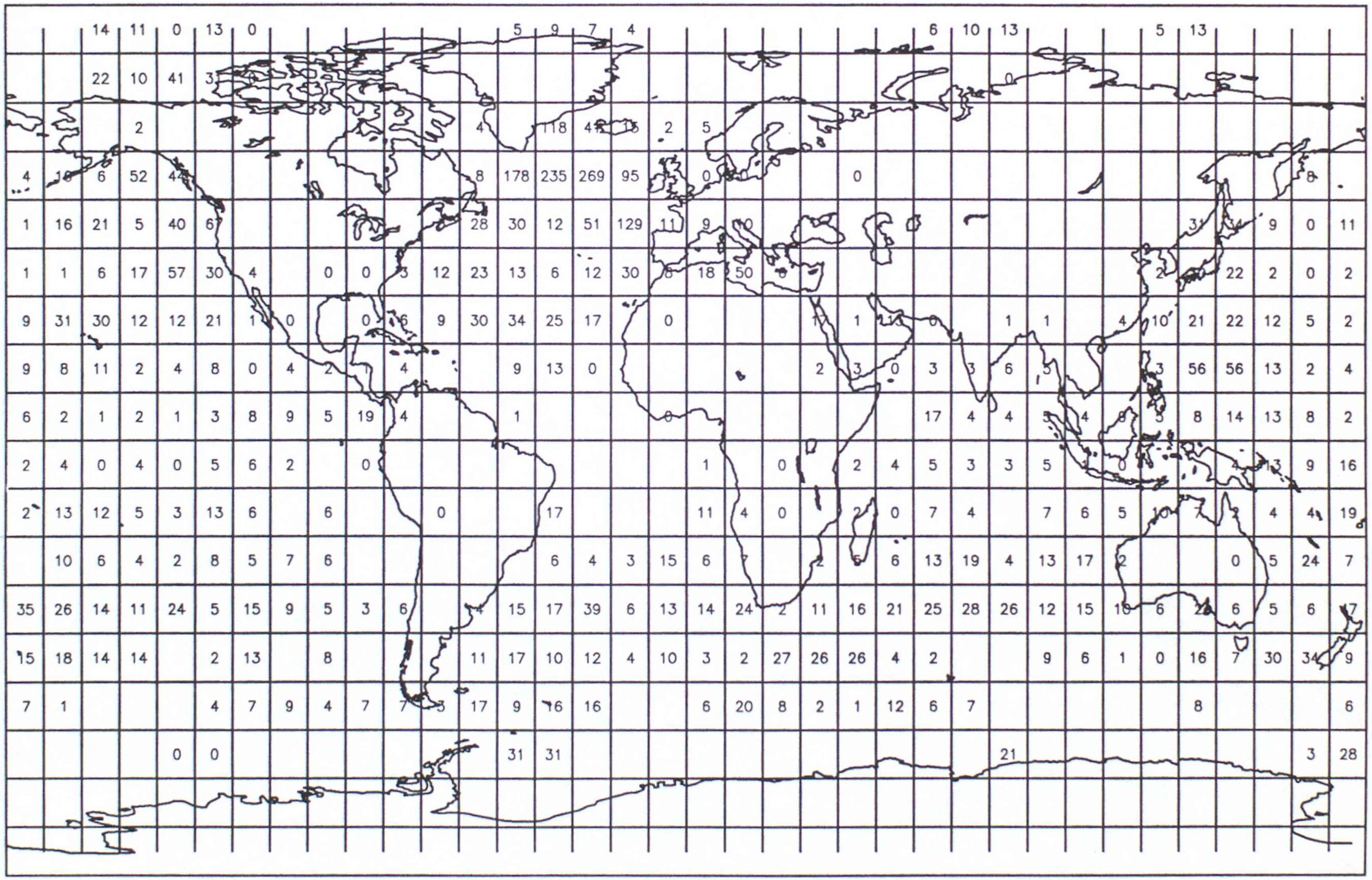
AVAILABILITY – DRIBU – JULY 1996

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 4547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22 10 41 3 0
2 4 118 4 15 2 5
4 16 6 52 4 8 178 235 269 95 0 0 8
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1 1 6 17 57 30 4 0 0 3 12 23 13 6 12 30 8 18 50 6 2 22 2 0 2
9 31 30 12 12 21 1 0 0 6 9 30 34 25 17 0 17 1 13 0 1 1 4 10 21 22 12 5 2
9 8 11 2 4 8 0 4 2 4 9 13 0 2 3 0 3 3 6 5 3 56 56 13 2 4
6 2 1 2 1 3 8 9 5 19 4 1 0 17 4 4 5 4 8 5 8 14 13 8 2
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10 6 4 2 8 5 7 6 6 4 3 15 6 7 2 5 6 13 19 4 13 17 2 0 5 24 7
35 26 14 11 24 5 15 9 5 3 6 4 15 17 39 6 13 14 24 2 11 16 21 25 28 26 12 15 10 6 22 6 5 6 17
15 18 14 14 2 13 8 11 17 10 12 4 10 3 2 27 26 26 4 2 9 6 1 0 16 7 30 34 9
7 1 4 7 9 4 7 7 3 17 9 16 16 6 20 8 2 1 12 6 7 8 6
0 0 31 31 21 3 28

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60010	28.3N	16.5W	2368	S7	91	0	0	80	1.6	-5.9	6.1
60445	36.2N	5.4E	1081	S8	89	1	1	65	1.0	5.0	5.1
60468	35.6N	6.2E	1052	S8	88	88	100	0	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	95	94	99	0	0.0	14.7	14.7
60535	34.7N	3.3E	1144	S8	67	0	0	99	1.5	-5.5	5.7
60670	24.6N	9.5E	1054	S8	87	0	0	100	0.8	8.3	8.3
63330	13.5N	39.5E	2212	MS	52	0	0	25	0.8	-4.7	4.8
63333	11.1N	39.7E	1916	MS	67	0	0	91	1.1	6.9	7.0
63453	8.8N	39.8E	1062	S	52	6	12	100	1.3	12.2	12.3
63478	5.1N	44.6E	320	MS	48	0	0	0	1.2	6.5	6.6
68014	19.6S	18.1E	1411	S8	84	0	0	75	1.2	-5.9	6.0
68442	29.1S	26.3E	1354	S8	108	0	0	98	1.4	-6.4	6.6
68488	28.4S	31.1E	1279	S8	30	19	63	3	1.3	-2.3	2.6
68752	32.8S	27.4E	524	S8	93	0	0	100	0.9	-8.5	8.5

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	M	56	1	2	100	1.0	11.1	11.1
31915	44.4N	131.4E	211	MS	118	0	0	1	1.2	-5.3	5.4
35173	51.6N	69.8E	305	MS	27	27	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	103	0	0	98	1.2	6.1	6.2
40740	36.8N	54.3E	1287	MS	51	1	2	16	1.3	-4.1	4.3
40743	36.2N	57.7E	941	MS	120	0	0	10	0.7	-4.9	4.9
40762	35.3N	59.2E	1333	MS	118	8	7	0	0.9	-13.3	13.3
40763	35.2N	58.5E	1060	MS	50	0	0	8	1.0	-5.8	5.9
40783	32.4N	49.7E	1972	MS	97	0	0	27	0.9	-4.6	4.7
40789	33.8N	55.1E	921	MS	79	0	0	100	0.9	8.9	8.9
40836	30.8N	51.7E	1880	MS	99	0	0	90	0.9	7.3	7.4
40859	29.0N	53.7E	1383	MS	93	1	1	99	1.0	8.9	9.0
41254	23.1N	57.7E	1755	S8	60	60	100	0	0.0	0.0	0.0
44232	49.4N	102.7E	933	MS	39	2	5	41	1.1	-4.1	4.2
44298	46.4N	108.2E	1285	MS	47	0	0	32	1.8	4.1	4.5
44416	28.6N	81.6E	720	MS	74	1	1	15	1.4	4.4	4.6
44477	27.0N	87.4E	1445	S8	62	62	100	0	0.0	0.0	0.0
52602	38.8N	93.4E	2734	S	122	0	0	27	1.9	-5.9	6.2
56444	28.5N	98.9E	3488	S	119	119	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	114	0	0	99	1.8	7.5	7.7
57816	26.5N	106.7E	1222	MS	122	59	48	0	3.7	0.6	3.7

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	31	1	3	0	1.3	-5.2	5.4
80315	3.0N	75.3W	443	MS	61	0	0	21	2.4	-4.3	4.9
82212	2.5S	66.2W	55	S	66	0	0	14	2.9	-4.0	4.9
82704	7.6S	72.7W	170	MS	71	1	1	1	1.5	-5.1	5.3
83214	10.3S	54.9W	285	MS	40	3	8	8	1.1	-6.9	7.0
83235	12.4S	46.4W	660	MS	64	0	0	100	0.7	6.9	6.9
83295	13.4S	39.9W	755	MS	37	1	3	95	0.6	-4.2	4.2
83319	14.7S	52.4W	315	MS	49	0	0	0	1.0	-5.0	5.1
83332	14.1S	46.4W	950	MS	68	19	28	79	0.8	13.7	13.7
83376	15.9S	49.0W	730	MS	67	0	0	27	1.0	-4.2	4.3
83408	14.3S	43.8W	556	MS	64	1	2	97	1.7	11.3	11.4
83423	16.7S	49.3W	729	MS	67	0	0	67	0.9	-5.8	5.9
83512	18.5S	54.8W	286	MS	31	0	0	3	2.6	-9.5	9.8
83531	18.6S	46.5W	896	MS	48	0	0	56	1.3	-7.8	7.9
83577	19.8S	47.9W	743	MS	28	0	0	0	1.3	-4.2	4.4
83586	19.5S	44.3W	732	MS	66	0	0	5	1.8	-4.1	4.5

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83587	19.9S	43.9W	850	MS	81	1	1	88	2.3	-8.1	8.4
83689	21.3S	43.8W	1171	MS	57	0	0	81	1.1	4.3	4.4
83704	22.3S	53.9W	369	MS	56	23	41	41	0.9	-10.6	10.6
83773	23.1S	48.9W	793	MS	36	0	0	53	1.3	-5.4	5.6
83836	25.5S	50.6W	837	MS	80	1	1	33	1.1	-4.3	4.4
83916	28.2S	51.5W	806	MS	61	1	2	64	1.7	-4.8	5.1
84401	5.2S	80.6W	55	MS	121	0	0	6	1.5	5.4	5.6
84455	6.5S	76.4W	282	MS	122	0	0	0	2.4	7.4	7.8
84472	7.1S	78.5W	2622	S	52	0	0	88	1.6	-6.1	6.3
84501	8.1S	79.0W	30	MS	116	3	3	2	1.6	5.4	5.6
84542	9.4S	77.6W	2760	S	48	0	0	0	2.2	5.1	5.6
84686	13.6S	72.0W	3249	S	120	0	0	8	1.9	-5.4	5.7
84782	18.1S	70.3W	469	MS	121	0	0	0	1.8	8.3	8.5
85195	16.3S	62.5W	534	MS	42	0	0	100	1.3	-7.0	7.1
85264	18.5S	64.1W	1998	S	42	28	67	19	2.1	-12.8	13.0
85394	22.8S	64.3W	381	MS	33	0	0	21	2.5	4.7	5.3
85406	18.3S	70.3W	58	M	121	0	0	8	1.7	6.8	7.0
85418	20.5S	70.2W	48	M	123	0	0	0	1.4	4.5	4.7

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71896	53.9N	122.8W	601	MS	123	0	0	52	5.7	-6.2	8.4
76118	30.4N	109.7W	1040	MS	44	2	5	95	1.0	-9.8	9.9
76539	22.1N	101.0W	1871	MS	98	0	0	64	0.9	-4.5	4.6
76632	20.1N	98.7W	2417	MS	57	1	2	79	0.7	-6.3	6.3
76634	20.1N	98.4W	2135	MS	106	1	1	58	1.1	-5.1	5.2
76658	19.2N	103.7W	494	MS	27	0	0	0	1.6	5.2	5.4
76750	18.5N	88.3W	3	MS	102	0	0	1	1.1	-4.1	4.2
76762	17.5N	99.5W	1360	MS	89	47	53	47	0.9	11.8	11.8
76848	16.3N	92.1W	1530	MS	74	5	7	49	6.6	-6.4	9.2

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	MS	51	0	0	0	0.9	-5.1	5.2

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	91	0	0	100	1.4	-5.5	5.7
02045	67.8N	20.4E	408	M	106	106	100	0	0.0	0.0	0.0
08221	40.5N	3.6W	633	MS	117	0	0	94	1.0	5.7	5.8
11024	48.4N	15.4E	860	S8	116	0	0	100	0.9	-12.9	12.9
11346	47.3N	12.8E	917	S8	91	0	0	12	1.2	-4.1	4.3
16020	46.5N	11.3E	1461	MS	80	80	100	0	0.0	0.0	0.0
16227	41.9N	13.6E	655	MS	121	121	100	0	0.0	0.0	0.0
16549	39.1N	8.3E	12	MS	120	0	0	0	1.0	-4.5	4.6
16614	40.4N	21.3E	604	MS	116	0	0	100	1.2	-7.3	7.4
40072	34.4N	40.9E	182	M	94	1	1	13	2.3	-5.3	5.8

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89332	82.6S	137.1W	549	S	79	2	3	22	6.4	0.4	6.4
89744	74.0S	43.0E	3353	S	80	6	8	29	3.4	8.2	8.9
89803	68.5S	102.2E	2118	M	70	12	17	83	2.1	-10.8	11.0
89828	74.5S	123.0E	3280	S	70	0	0	11	4.2	4.4	6.1
89860	74.2S	160.3E	1772	S	70	0	0	3	4.4	-5.0	6.7

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP ≥ 20

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	175	1	2	1.8	0.8	176	0	3	1	8.0	0.9
AAL	5447	0	1	1.7	0.1	5446	0	2	0	7.6	1.1
AAN	247	2	3	1.4	-0.9	249	0	6	0	9.2	0.5
AAR	2064	1	1	1.5	0.0	2047	0	2	0	8.2	0.8
ACA	2200	0	2	2.2	0.5	2265	0	2	1	6.7	0.5
ACI	34	3	3	2.4	-0.2	33	0	0	0	9.9	-0.1
AEA	634	23	17	3.1	1.7	604	0	6	0	8.8	1.2
AEL	673	2	8	2.7	0.5	679	0	4	0	7.4	0.8
AFL	370	2	100	2.8	1.2	367	0	5	1	9.3	1.1
AFR	1576	1	4	1.7	-0.1	1616	0	4	0	7.6	1.1
AIC	26	0	8	2.6	1.2	26	0	12	0	14.7	1.9
AIH	215	0	3	1.5	0.1	225	0	5	0	8.7	1.1
AMT	590	0	4	1.6	0.7	606	0	5	0	6.7	0.4
AMX	250	0	3	1.2	0.1	256	0	4	0	7.7	0.3
ANA	915	0	2	1.8	-0.3	911	0	3	1	8.3	1.4
ANZ	2652	2	3	1.9	-0.2	2622	0	3	1	8.1	1.1
AOM	682	1	3	1.7	0.8	691	0	3	1	7.3	0.9
ARP	50	0	2	1.9	0.9	49	0	2	2	5.9	1.6
ASY	24	4	13	2.8	1.6	24	0	4	0	7.4	0.9
ATN	55	2	13	2.7	-0.2	55	0	100	0	13.1	3.3
AUA	66	0	5	1.8	-0.7	64	0	3	0	7.9	2.2
AVA	358	1	1	1.6	-0.1	366	0	4	1	8.7	1.6
AVN	47	0	2	1.8	0.0	47	0	2	0	8.1	-0.9
AZA	567	1	5	2.2	0.3	579	0	4	0	8.1	1.5
BAL	634	1	11	1.6	-0.7	650	0	11	0	7.2	0.8
BAW	1661	0	2	1.9	0.0	1668	0	3	0	7.5	1.0
BBB	91	0	0	1.4	-0.8	91	0	3	1	7.0	0.7
BWA	370	1	5	2.2	1.4	376	0	6	1	7.9	1.0
CAL	2110	0	1	1.5	0.0	2115	0	2	1	7.5	0.9
CCA	180	1	26	2.4	0.7	198	1	95	1	9.5	0.2
CDN	2748	1	2	2.0	0.3	2740	0	2	1	7.6	0.5
CES	274	2	4	1.6	0.3	278	0	5	0	8.9	1.1
CFG	964	0	2	1.8	-1.2	973	0	2	1	6.8	0.4
CKS	113	0	99	2.6	1.5	114	0	7	1	8.9	0.7
CKT	220	1	5	1.4	0.4	219	0	5	0	7.2	1.0
CLI	287	0	3	2.3	0.0	291	0	2	0	7.8	0.6
CLX	179	0	2	1.9	-0.1	179	0	1	1	6.6	0.7
CMI	936	1	3	2.1	0.0	941	0	4	2	7.8	2.0
CMM	437	0	1	1.9	0.1	446	0	3	1	7.2	0.7
COA	1104	0	2	1.6	0.3	1111	0	3	1	7.3	0.4
CPA	64	2	2	1.6	-0.9	70	0	1	1	8.0	1.1
CRL	660	1	3	1.6	0.5	669	0	4	1	7.8	1.2
CSA	46	0	0	1.3	-0.6	46	0	0	2	6.2	2.5
CTM	168	0	11	2.5	-0.1	170	0	11	0	8.5	1.4
CUB	402	2	79	2.7	1.6	403	1	34	1	10.2	2.3
DAF	25	0	0	1.9	0.7	25	0	8	8	5.8	-0.1
DAL	5296	1	2	1.9	0.6	4952	0	2	0	7.4	0.6
DHL	420	4	100	4.1	-0.5	424	0	3	0	8.1	0.9
DLH	3209	0	6	2.3	0.5	3238	0	10	4	7.3	0.9
DOA	86	0	15	3.7	1.0	88	0	8	1	6.9	1.2
EHD	43	2	2	2.3	-0.9	43	0	7	0	13.2	3.6
EIA	57	4	5	1.7	-0.5	56	0	5	0	6.8	0.2
ELY	160	1	9	1.7	0.0	167	0	11	0	9.1	1.6
EVA	2126	1	1	1.5	-0.4	2190	0	2	1	7.2	0.6
EWW	121	3	100	3.5	-0.4	127	0	100	0	17.2	5.4
FDX	1290	0	2	1.7	0.5	1290	0	2	0	8.0	0.0
FIN	660	0	3	2.1	0.5	659	0	6	3	7.9	1.0
FJI	516	2	3	1.7	0.4	510	0	2	1	9.0	-0.3
FOM	91	1	2	2.1	0.1	99	0	5	1	15.1	-0.9

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GAF	173	0	1	2.4	0.6	175	0	6	2	9.0	0.7
GFA	23	0	0	1.9	0.2	22	0	0	0	6.2	-0.8
GIA	174	1	0	1.7	0.3	172	0	1	1	7.4	1.6
GTI	64	0	2	1.8	-0.5	64	0	2	0	7.3	0.4
HAL	1555	0	1	1.3	0.4	1559	0	1	1	6.3	0.4
HLF	210	0	1	1.4	-0.8	206	0	0	0	7.0	0.8
HRH	48	4	4	1.6	0.4	46	0	0	0	8.9	0.5
HZM	38	5	11	2.5	1.1	39	0	5	0	10.1	-0.5
IBE	2427	1	14	1.7	0.4	2421	0	15	0	7.5	0.7
ICE	672	0	1	2.0	0.1	670	0	2	1	8.0	0.4
JAA	29	0	3	1.9	1.3	28	0	4	0	12.2	3.5
JAL	7049	0	1	1.6	0.2	7060	0	3	1	7.5	1.1
JAZ	88	2	5	1.7	0.8	88	0	3	1	7.5	-0.7
KAC	26	0	0	1.6	0.0	27	0	4	4	9.8	2.9
KAL	3876	1	3	2.0	0.0	3869	0	2	0	8.0	0.9
KIC	178	7	8	2.3	0.1	201	0	2	1	11.7	0.4
KIW	29	3	10	3.5	3.0	30	0	7	0	10.4	-1.1
KJC	24	4	0	2.1	1.3	24	0	4	0	9.9	0.0
KLM	2614	0	2	1.9	0.3	2614	0	3	1	7.6	0.8
LAZ	31	0	6	3.7	2.1	31	0	6	0	9.2	3.7
LDA	234	1	5	1.8	-0.9	238	0	4	0	5.9	0.8
LDI	207	1	16	1.8	-1.3	208	0	17	0	7.0	-0.2
LIB	466	1	3	1.4	0.5	466	0	5	1	7.5	1.6
LKR	69	0	3	1.4	0.7	69	0	4	1	7.2	1.0
LOT	431	0	0	2.2	-0.6	431	0	0	0	7.6	0.9
LTU	789	1	4	1.5	0.0	761	0	4	1	6.6	0.7
MAS	317	0	1	1.6	-0.2	345	0	2	0	8.3	1.1
MDA	193	1	2	1.8	-0.4	200	0	2	0	8.5	1.0
MPH	788	0	2	1.8	-0.3	793	0	2	0	6.9	0.6
NCA	669	0	1	1.7	0.0	668	0	1	0	7.6	0.3
NWA	11379	0	2	2.0	0.8	11374	0	3	1	7.9	0.8
OAL	45	0	0	2.3	1.7	48	0	0	0	8.7	3.5
PAC	109	1	1	1.9	-0.1	114	0	4	1	10.5	-1.0
PAL	1006	0	2	1.4	-0.4	1010	0	4	3	7.7	0.6
PAO	168	2	4	1.8	-0.1	166	0	5	1	9.2	-0.5
PNL	131	2	5	2.0	0.8	129	0	6	2	10.6	1.3
QFA	1125	1	3	1.7	0.0	1124	0	3	1	8.0	0.7
RAF	197	0	0	1.9	0.5	197	0	2	1	9.7	0.6
RAM	31	6	3	1.9	-1.3	31	0	0	0	7.0	1.6
RCH	477	2	71	2.9	0.7	486	0	72	0	13.0	2.6
RIA	703	1	4	2.2	1.2	713	0	12	1	11.4	2.1
RJA	87	0	2	2.1	0.8	87	0	2	0	7.6	0.6
RKA	86	2	2	1.3	-0.2	86	0	2	1	7.1	1.0
RON	20	0	5	1.7	-0.4	20	5	5	0	6.9	0.0
RRR	286	0	16	2.7	0.1	287	0	16	1	9.1	1.2
SAA	243	0	3	1.5	-0.3	243	0	3	0	7.1	1.2
SAB	103	0	2	1.6	0.1	102	0	0	0	6.9	1.9
SAS	1474	1	3	2.3	0.1	1460	0	4	2	7.7	0.5
SIA	1525	1	2	1.7	-0.6	1549	0	3	1	7.9	1.0
SLR	155	1	17	2.3	-0.5	154	0	15	0	7.4	0.0
SOL	48	2	4	1.2	0.3	49	0	2	0	9.8	-0.9
SPP	180	0	18	1.7	0.1	169	0	16	0	7.7	1.0
SVA	164	1	3	1.9	0.2	173	0	4	0	8.9	1.2
SVV	20	5	10	3.2	2.1	21	0	14	0	13.5	5.1
SWR	154	1	2	1.8	0.3	157	0	3	0	8.5	1.6
TAM	22	0	9	2.6	-0.7	22	0	5	0	9.6	2.0
TAP	819	1	7	1.5	-0.1	815	0	7	0	7.7	1.0
TEJ	100	0	20	1.5	0.4	100	0	20	0	8.8	1.6
THA	295	0	2	1.5	-0.3	304	0	2	0	8.2	1.5

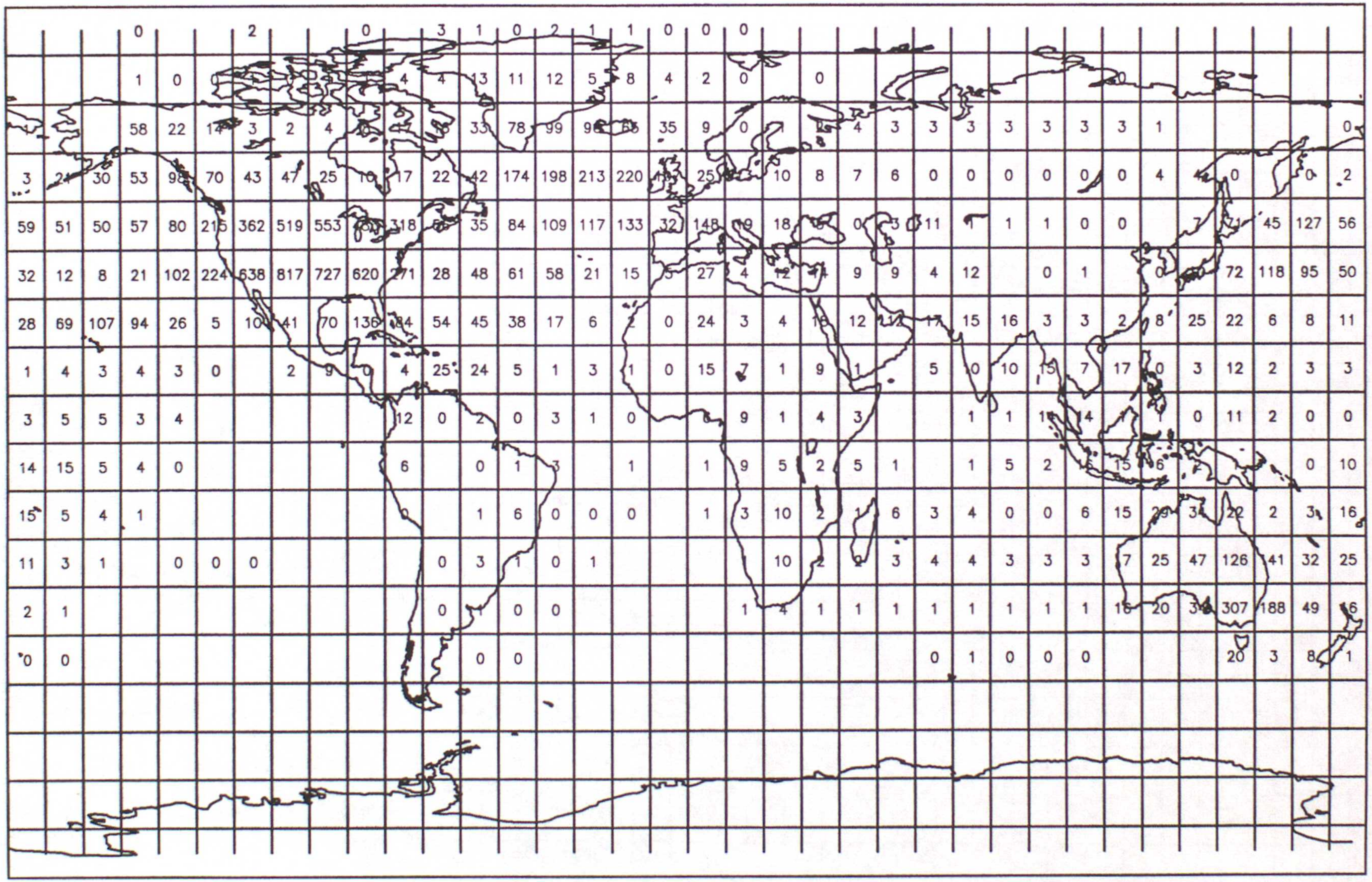
		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TOW	152	1	2	2.0	-0.6	155	0	6	0	9.2	1.0
TSC	300	1	82	2.1	0.3	305	0	7	0	9.4	1.7
TWA	1890	0	2	1.9	-0.1	1887	0	3	0	8.1	1.2
TWE	25	0	8	1.9	-0.3	25	0	4	0	7.7	0.6
UAL	58771	1	3	1.2	0.1	58848	0	2	0	6.1	0.7
UKR	23	0	43	3.1	0.6	23	0	57	0	20.1	-2.6
ULE	258	0	1	1.4	0.2	256	0	3	1	7.1	1.5
UPS	1000	1	10	1.8	0.0	1007	0	10	0	7.5	0.7
USA	269	1	4	1.7	-0.2	262	0	3	0	7.9	1.5
VIA	538	1	3	1.5	0.8	543	0	6	2	7.4	0.9
VIR	330	1	2	2.0	0.0	331	0	2	0	7.0	1.8
VRG	85	2	4	1.7	0.5	86	0	3	1	9.8	0.5
VSP	165	0	4	2.0	0.4	165	0	5	0	9.4	0.7
WOA	417	1	7	1.9	0.7	414	0	8	0	8.2	0.8
XAS	30	0	0	1.5	0.0	30	0	0	0	8.3	2.5
AN	22684	0	2	1.3	0.1	22505	0	1	0	7.4	1.1
BA	22109	0	6	1.3	0.4	22059	0	6	0	6.8	1.1
DL	90434	0	3	0.9	0.0	90434	0	2	0	5.9	1.0
FJ	55	5	9	1.7	0.3	56	2	7	0	7.4	0.8
IT	111	0	1	1.4	0.2	111	0	1	0	9.0	-0.6
KL	12368	0	6	1.2	0.3	12357	0	6	0	6.7	1.1
LH	1736	0	1	1.4	0.5	1726	0	1	0	6.3	1.2
MK	2646	0	1	1.2	0.7	2631	0	1	0	8.5	0.9
NW	33166	0	1	1.2	0.2	33166	0	1	0	5.8	1.0
QF	8436	0	1	1.1	0.2	8427	0	1	0	7.0	0.8
SA	1846	0	0	1.2	0.7	1846	0	29	0	7.8	1.7
SV	2109	0	2	1.1	0.7	2097	0	2	0	6.4	0.7
N	360	2	4	2.5	0.4	385	0	5	0	10.4	2.0

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

JULY 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

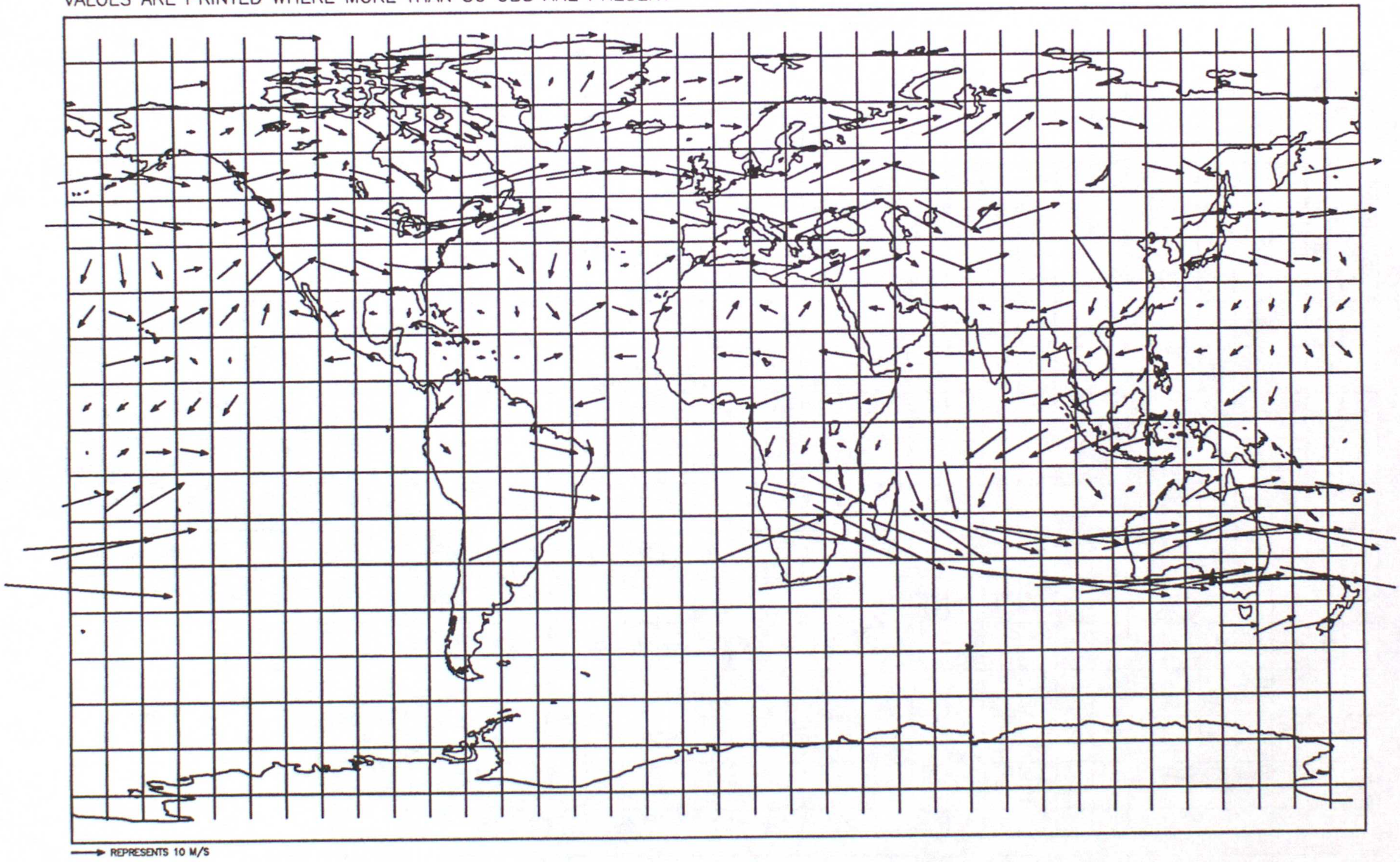
FIGURE 3



AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

JULY 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



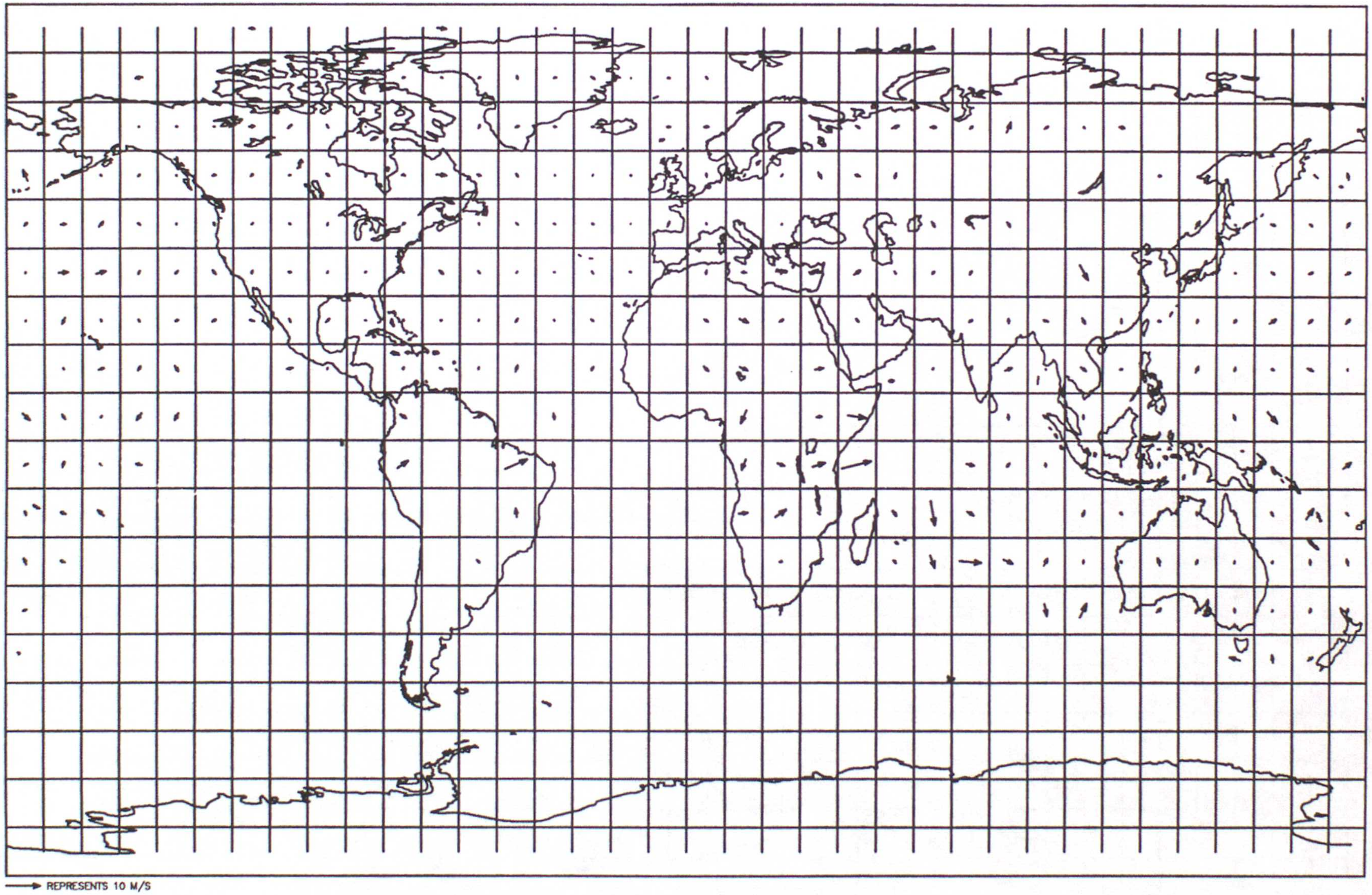
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

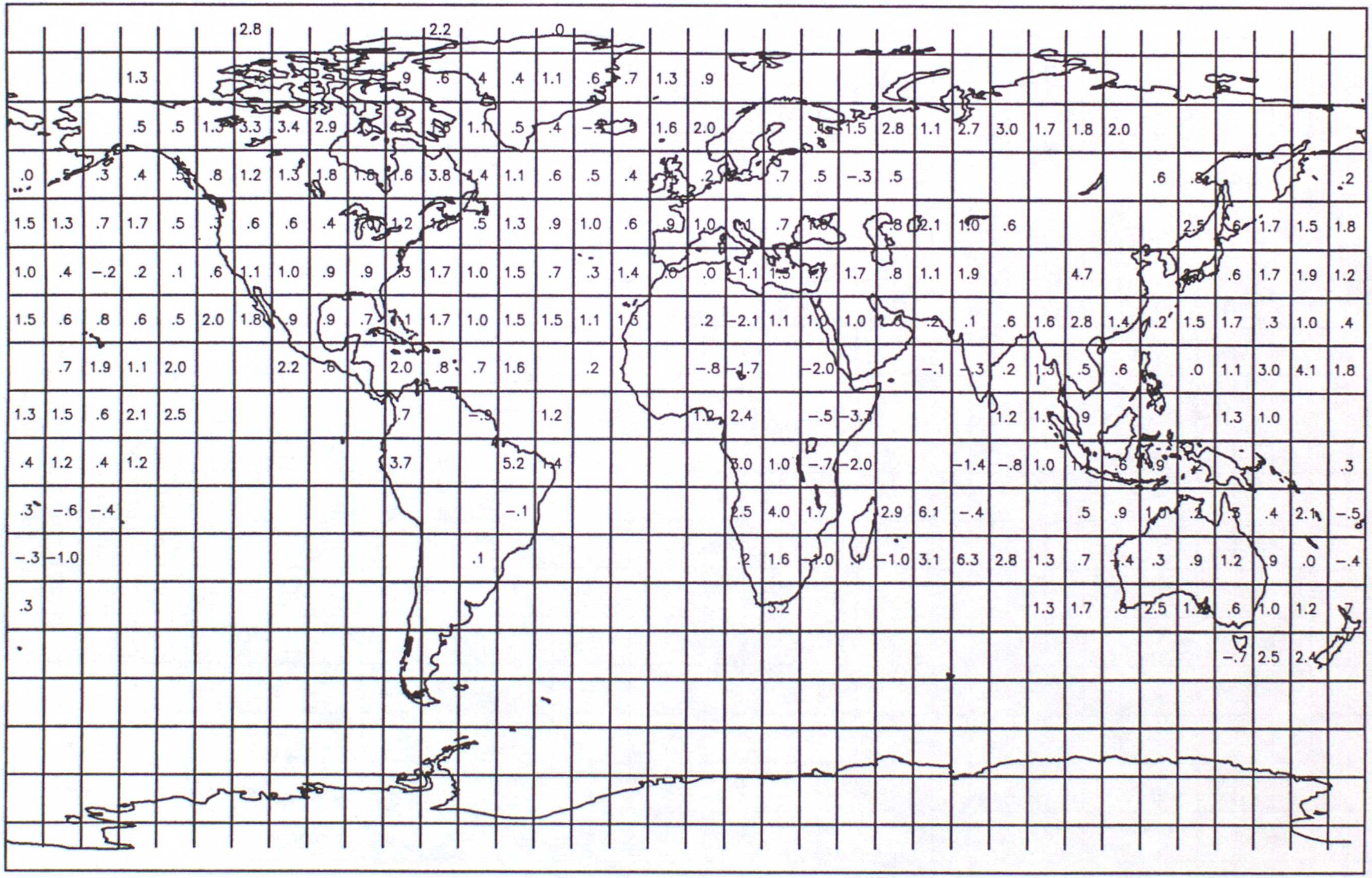
JULY 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
JULY 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT


2.8 2.2 .0
1.3 .9 .6 .4 .4 1.1 .6 .7 1.3 .9
.5 .5 1.3 3.3 3.4 2.9 1.1 .5 .4 1.6 2.0 1.5 2.8 1.1 2.7 3.0 1.7 1.8 2.0
.0 .5 .3 .4 .5 .8 1.2 1.3 1.8 1.8 1.6 3.8 1.4 1.1 .6 .5 .4 .2 .7 .5 –.3 .5 .6 .8 .2
1.5 1.3 .7 1.7 .5 .3 .6 .6 .4 1.2 .5 1.3 .9 1.0 .6 .9 1.0 .1 .7 1.0 .8 2.1 1.0 .6 2.5 .6 1.7 1.5 1.8
1.0 .4 –.2 .2 .1 .6 1.1 1.0 .9 .9 .3 1.7 1.0 1.5 .7 .3 1.4 .0 .0 –1.1 1.3 .7 1.7 .8 1.1 1.9 4.7 .6 1.7 1.9 1.2
1.5 .6 .8 .6 .5 2.0 1.8 .9 .9 .7 1.1 1.7 1.0 1.5 1.5 1.1 1.3 .2 –2.1 1.1 1.0 1.0 .2 .1 .6 1.6 2.8 1.4 1.2 1.5 1.7 .3 1.0 .4
.7 1.9 1.1 2.0 2.2 .6 2.0 .8 .7 1.6 .2 –.8 –1.7 –2.0 –.1 –.3 .2 1.3 .5 .6 .0 1.1 3.0 4.1 1.8
1.3 1.5 .6 2.1 2.5 .7 –.9 1.2 1.2 2.4 –.5 –3.7 1.2 1.5 .9 1.3 1.0
.4 1.2 .4 1.2 3.7 5.2 1.4 3.0 1.0 –.7 –2.0 –1.4 –.8 1.0 .6 .9 .3
.3 –.6 –.4 –.1 2.5 4.0 1.7 2.9 6.1 –.4 .5 .9 1.0 .2 .3 .4 2.1 –.5
–.3 –1.0 .1 .2 1.6 –1.0 .1 –1.0 3.1 6.3 2.8 1.3 .7 –.4 .3 .9 1.2 .9 .0 –.4
.3 3.2 1.3 1.7 .8 2.5 1.2 .6 1.0 1.2 .7
–.7 2.5 2.4

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
JULY 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

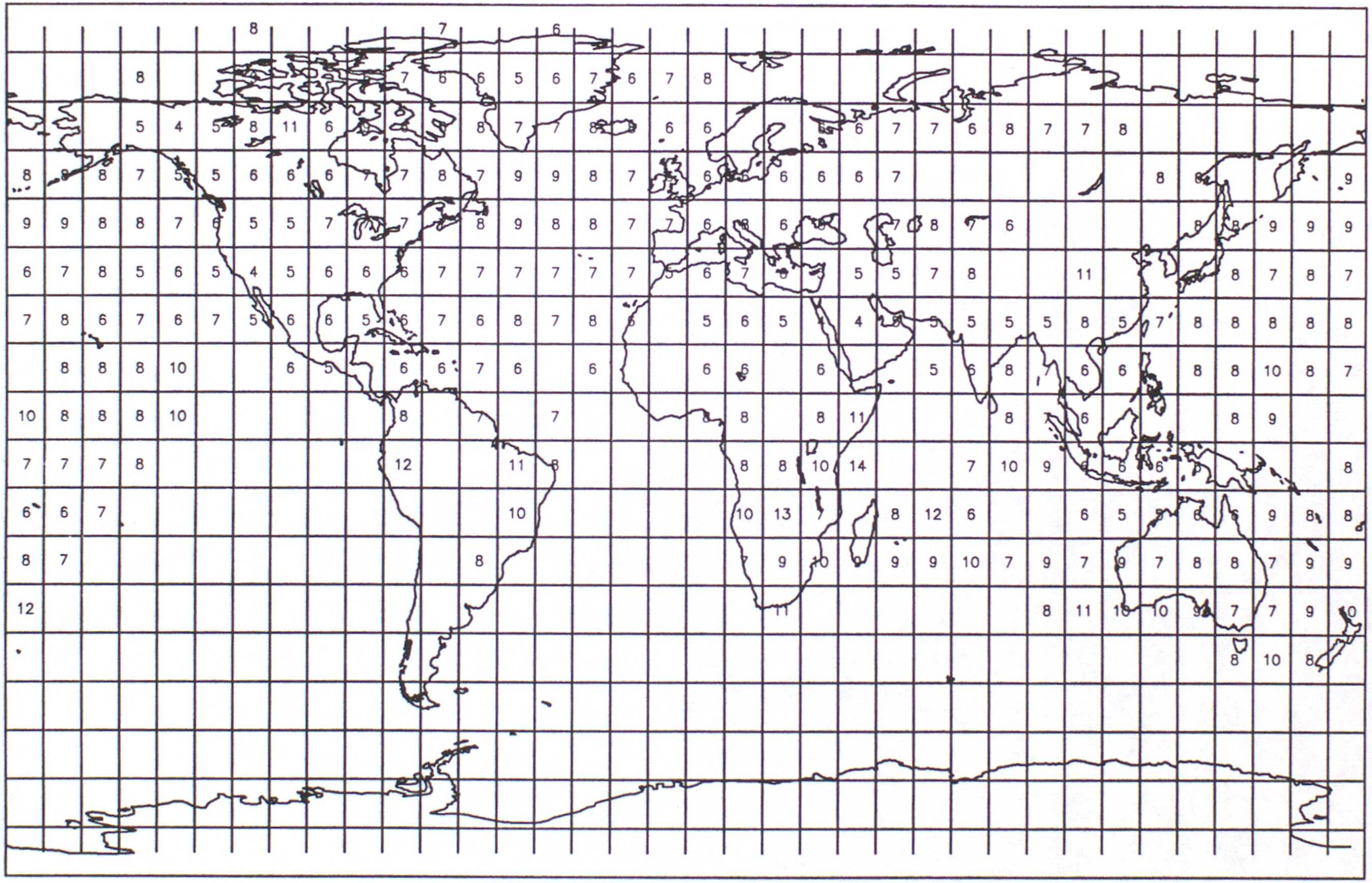


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown duringperiod.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
15480	00	Z	100	44/ 29	8	2	45.5	99.3	109.2	4
26258	00	Z	150	58/ 28	14	1	122.2	34.6	127.0	5
33791	12	Z	250	43/ 33	9	4	109.6	-116.0	159.6	10
37018	12	Z	30	44/ 39	16	0	58.5	193.7	202.3	6
41977	00	Z	850	22/ 92	22	1	42.4	-10.0	43.6	5
42027	00	Z	150	34/ 75	11	0	95.1	-50.1	107.5	5
42101	00	Z	500	30/ 76	16	0	36.2	-46.4	58.8	7
42369	00	Z	200	27/ 81	21	0	93.0	17.8	94.7	6
42369	12	Z	100	27/ 81	11	0	103.0	85.5	133.8	4
42379	00	Z	30	27/ 83	10	1	113.4	220.6	248.0	9
42397	00	Z	100	27/ 88	11	0	139.6	-55.3	150.2	5
42397	12	Z	100	27/ 88	14	0	128.8	-68.4	145.9	8
42410	00	Z	150	26/ 92	21	0	93.9	-9.8	94.4	4
42647	12	Z	100	23/ 73	13	1	71.7	107.7	129.4	4
42724	00	Z	150	24/ 91	21	0	100.8	34.0	106.4	7
42724	12	Z	100	24/ 91	11	0	107.2	-93.5	142.3	4
43003	12	Z	150	19/ 73	20	1	91.6	62.4	110.8	4
43014	00	Z	100	20/ 75	16	0	129.5	3.4	129.5	4
43128	00	Z	150	17/ 78	19	0	94.3	-51.1	107.3	7
43128	12	Z	200	17/ 78	16	0	109.4	10.4	109.9	5
43192	00	Z	100	15/ 74	19	0	89.4	-105.3	138.1	6
43279	00	Z	70	13/ 80	12	0	157.3	-33.5	160.8	5
43369	00	Z	100	8/ 73	14	0	63.7	-152.9	165.7	6
50527	00	Z	70	49/ 120	30	0	84.6	124.6	150.6	6
50527	12	Z	70	49/ 120	28	1	82.3	133.9	157.2	4
52836	12	Z	100	36/ 98	24	0	50.3	143.2	151.7	6
54161	00	Z	30	44/ 125	21	5	142.1	146.8	204.3	8
54161	12	Z	150	44/ 125	30	0	73.3	74.5	104.5	4
54342	00	Z	70	42/ 123	24	0	68.8	112.4	131.8	5
54497	00	Z	30	40/ 124	16	0	109.4	172.2	204.0	4
54823	00	Z	70	37/ 117	26	0	85.4	118.4	146.0	5
54823	12	Z	100	37/ 117	23	0	67.6	106.2	125.8	4
56294	00	Z	100	31/ 104	26	0	31.7	122.2	126.2	4
56294	12	Z	100	31/ 104	25	0	37.0	114.3	120.2	4
56964	12	Z	30	23/ 101	12	1	37.1	205.2	208.6	4
56985	12	Z	100	23/ 103	28	0	34.9	124.5	129.3	5
57516	00	Z	100	30/ 106	26	0	46.3	139.3	146.8	6
57516	12	Z	70	30/ 106	20	0	54.6	159.6	168.7	5
61998	12	Z	500	-49/ 70	26	0	34.6	38.9	52.1	5
62306	12	Z	70	31/ 27	8	17	50.5	326.6	330.5	8
62378	12	Z	100	30/ 31	11	7	112.4	144.6	183.2	6
68240	12	Z	500	-24/ 26	19	1	55.3	-58.4	80.4	7
76394	00	Z	30	26/-100	24	0	36.8	186.8	190.4	4
82824	12	Z	850	-9/ -64	19	0	23.9	-43.7	49.8	7
85934	12	Z	250	-53/ -71	28	0	38.4	72.6	82.1	4
88889	00	Z	300	-52/ -58	27	0	36.1	57.7	68.0	4
89002	12	Z	500	-71/ -8	27	0	53.8	4.7	54.0	4
89050	00	Z	250	-62/ -59	27	1	54.1	105.3	118.4	9
89642	00	Z	1000	-67/ 140	10	0	34.0	-3.8	34.2	5
96163	00	Z	200	-1/ 100	14	0	56.0	-69.4	89.2	4

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – JULY 1996 FIGURE 8
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1345

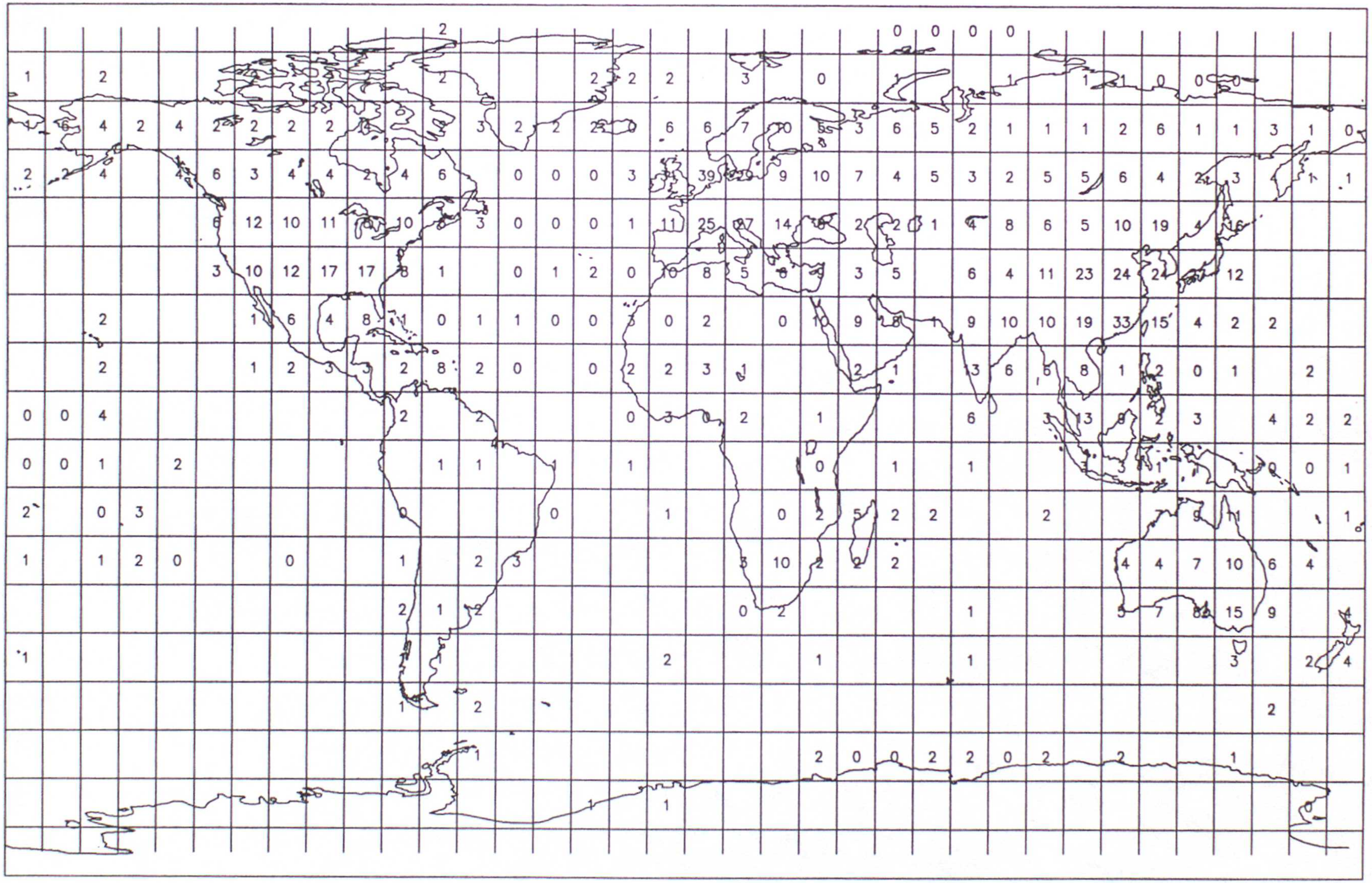


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : $\geq$ 10 observations and $\geq$ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
15480	00	V	200	44/ 29	13	0	15	-15.4	-7.1	16.2	2
41316	00	V	100	17/ 54	18	0	27	26.3	-2.2	18.9	2
41977	00	V	100	22/ 92	21	0	0	-7.4	5.4	16.4	1
43014	00	V	100	20/ 75	13	0	7	-15.0	-2.0	20.7	1
43014	12	V	100	20/ 75	18	0	22	-10.5	-4.2	18.2	1
63985	00	V	150	-5/ 56	18	0	27	18.4	7.9	17.5	1
68461	00	V	250	-28/ 28	31	0	16	-13.6	3.2	20.9	5
68461	12	V	250	-28/ 28	30	0	13	-11.0	0.4	18.0	1
71823	00	V	500	54/ -74	18	3	52	22.4	18.0	23.5	4
71913	00	V	150	59/ -94	20	2	22	-6.5	10.8	17.3	4
76151	00	V	250	29/-118	13	0	7	-1.7	7.0	16.2	1
82965	12	V	200	-10/ -56	11	1	50	8.9	8.5	19.7	2
83612	00	V	250	-20/ -55	16	0	25	0.4	-2.9	16.4	2
83612	12	V	150	-20/ -55	12	0	16	8.1	0.5	17.7	1

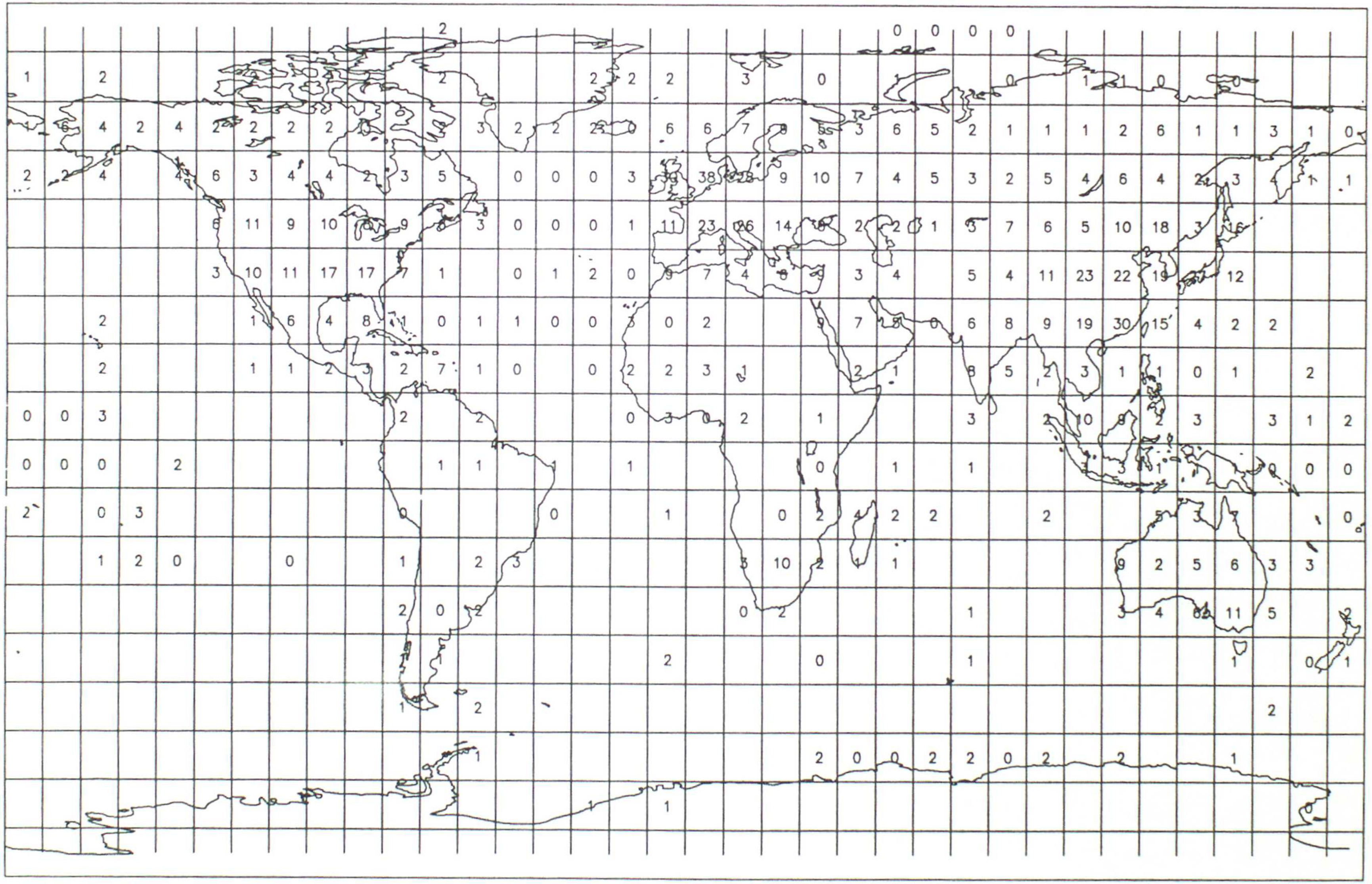
AVAILABILITY – TEMP/PILOT – 300 HPA WIND – JULY 1996

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1202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1 2 2 2 2 2 3 0 0 1 1 0 0
6 4 2 4 2 2 2 2 3 2 2 2 6 6 7 8 5 3 6 5 2 1 1 1 2 6 1 1 3 1 0
2 2 4 4 6 3 4 4 2 3 5 0 0 0 3 3 38 28 9 10 7 4 5 3 2 5 4 6 4 2 3 1 1
6 11 9 10 0 9 8 3 0 0 0 1 11 23 26 14 8 2 2 1 3 7 6 5 10 18 3 16
3 10 11 17 17 7 1 0 1 2 0 9 7 4 8 3 4 5 4 11 23 22 19 12
2 1 6 4 8 1 0 1 1 0 0 3 0 2 9 7 8 0 6 8 9 19 30 15 4 2 2
2 1 1 2 3 2 7 1 0 0 2 2 3 1 2 1 8 5 2 3 1 1 0 1 2
0 0 3 2 2 0 3 0 2 1 3 2 10 8 2 3 3 1 2
0 0 0 2 1 1 1 1 0 1 1 3 1 0 0 0
2 0 3 0 0 1 0 2 4 2 2 2 5 3 7 0 0
1 2 0 0 1 2 3 3 10 2 1 1 9 2 5 6 3 3
2 0 2 0 2 1 3 4 6 11 5 2
2 0 1 1 0 1
1 2 2
1 2 0 0 2 2 0 2 2 1
1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.
SELECTION CRITERIA	:NUM OBS ≥ 5, and ABSOLUTE BIAS ≥ 10°, with SD < 30°, and MAX SPREAD < 10°	

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
JCCX	00	DD	32/ 130	9	-14.0	9.2	19.4
08221	12	DD	40/ -4	26	-10.5	4.7	18.9
29263	00	DD	58/ 92	23	10.4	9.2	22.0
29572	12	DD	56/ 93	10	11.4	6.0	19.7
41114	12	DD	18/ 43	24	11.2	9.2	16.8
48407	00	DD	15/ 105	14	-15.2	8.4	28.2
48820	00	DD	21/ 106	18	-12.7	6.6	23.8
53614	12	DD	38/ 106	26	-12.2	6.4	15.8
55591	12	DD	30/ 91	15	-34.5	3.5	25.0
58968	12	DD	25/ 122	17	-11.8	7.0	22.3
60191	12	DD	32/ -6	25	-10.1	10.0	20.6
65503	12	DD	12/ -2	16	-10.3	9.8	24.6
67083	00	DD	-19/ 47	23	19.4	5.3	20.4
67083	12	DD	-19/ 47	24	15.8	9.1	21.2
78583	00	DD	18/ -88	7	15.2	9.8	24.3
87860	12	DD	-46/ -67	25	-10.7	8.1	17.9

MONITORING OF SATELLITE WINDS

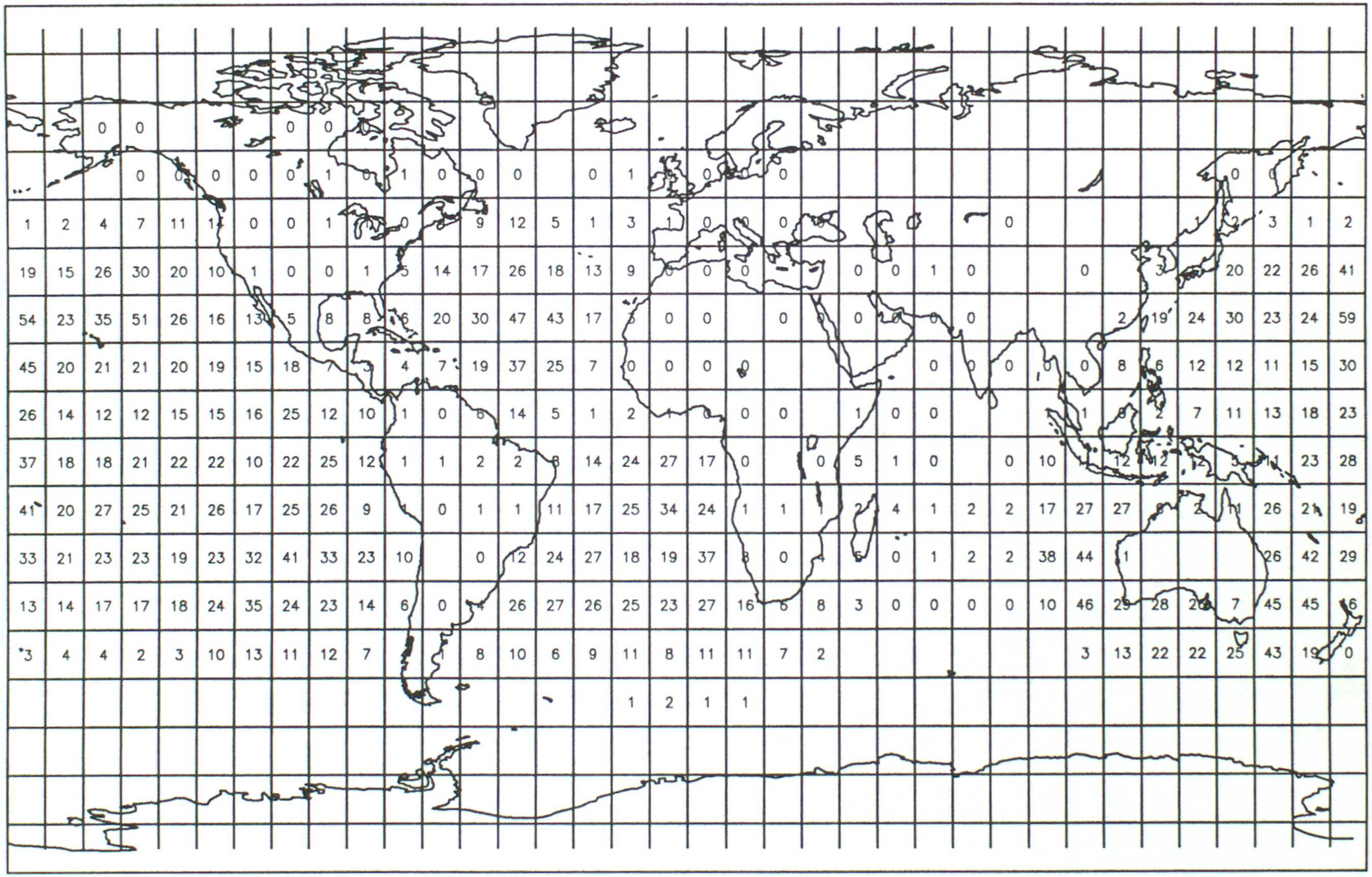
MONITORING CENTRE: BRACKNELL

MONTH: July, 1996

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES, METEOSAT, GMS, INSAT.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer 701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
JULY 1996


0 0 0 0
0 0 0 0 0 1 0 1 0 0 0 0 1 0 0 0 0 0
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19 15 26 30 20 10 1 0 0 1 5 14 17 26 18 13 9 0 0 0 0 0 1 0 0 3 20 22 26 41
54 23 35 51 26 16 13 5 8 8 6 20 30 47 43 17 3 0 0 0 0 0 0 0 2 19 24 30 23 24 59
45 20 21 21 20 19 15 18 7 3 4 7 19 37 25 7 0 0 0 0 0 0 0 0 0 8 6 12 12 11 15 30
26 14 12 12 15 15 16 25 12 10 1 0 6 14 5 1 2 1 0 0 0 1 0 0 1 8 2 7 11 13 18 23
37 18 18 21 22 22 10 22 25 12 1 1 2 2 8 14 24 27 17 0 0 5 1 0 0 10 1 12 12 12 3 11 23 28
41 20 27 25 21 26 17 25 26 9 1 0 1 1 11 17 25 34 24 1 1 1 2 4 1 2 2 17 27 27 8 2 11 26 21 19
33 21 23 23 19 23 32 41 33 23 10 0 12 24 27 18 19 37 8 0 4 5 0 1 2 2 38 44 1 26 42 29
13 14 17 17 18 24 35 24 23 14 6 0 4 26 27 26 25 23 27 16 6 8 3 0 0 0 0 10 46 25 28 26 7 45 45 16
3 4 4 2 3 10 13 11 12 7 1 8 10 6 9 11 8 11 11 7 2 3 13 22 22 25 43 19 0
1 2 1 1

FIGURE 11

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
JULY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

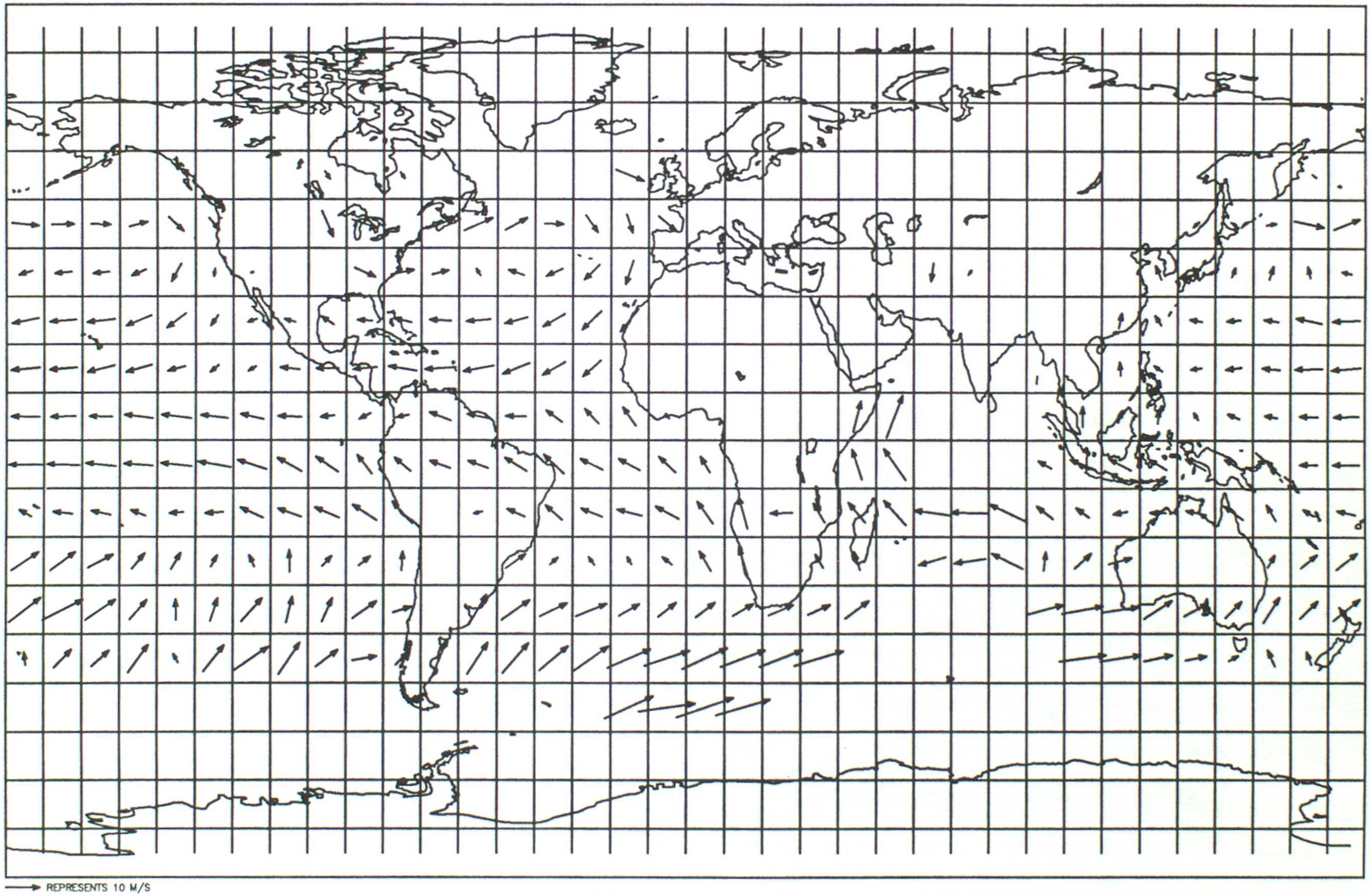
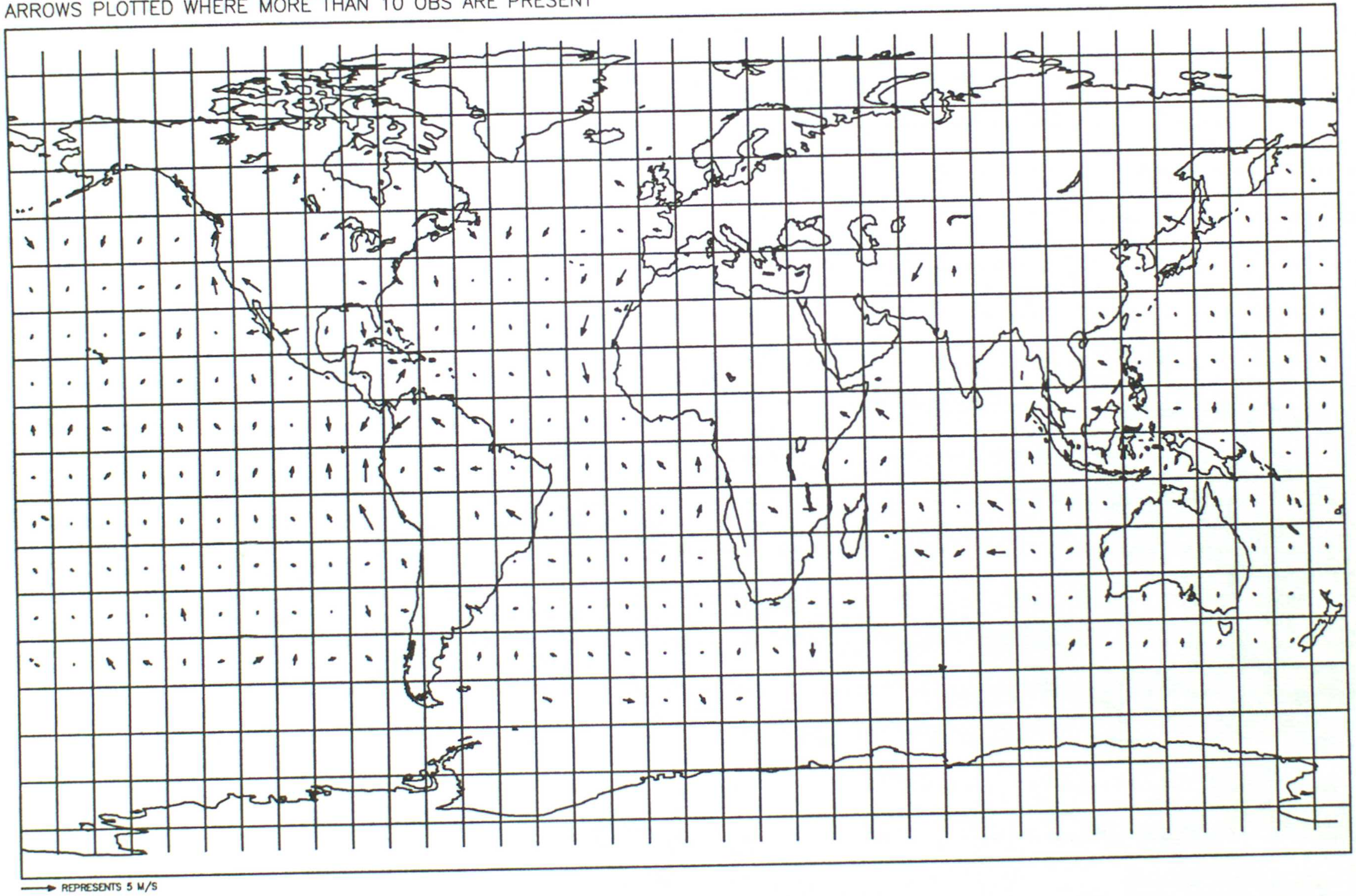
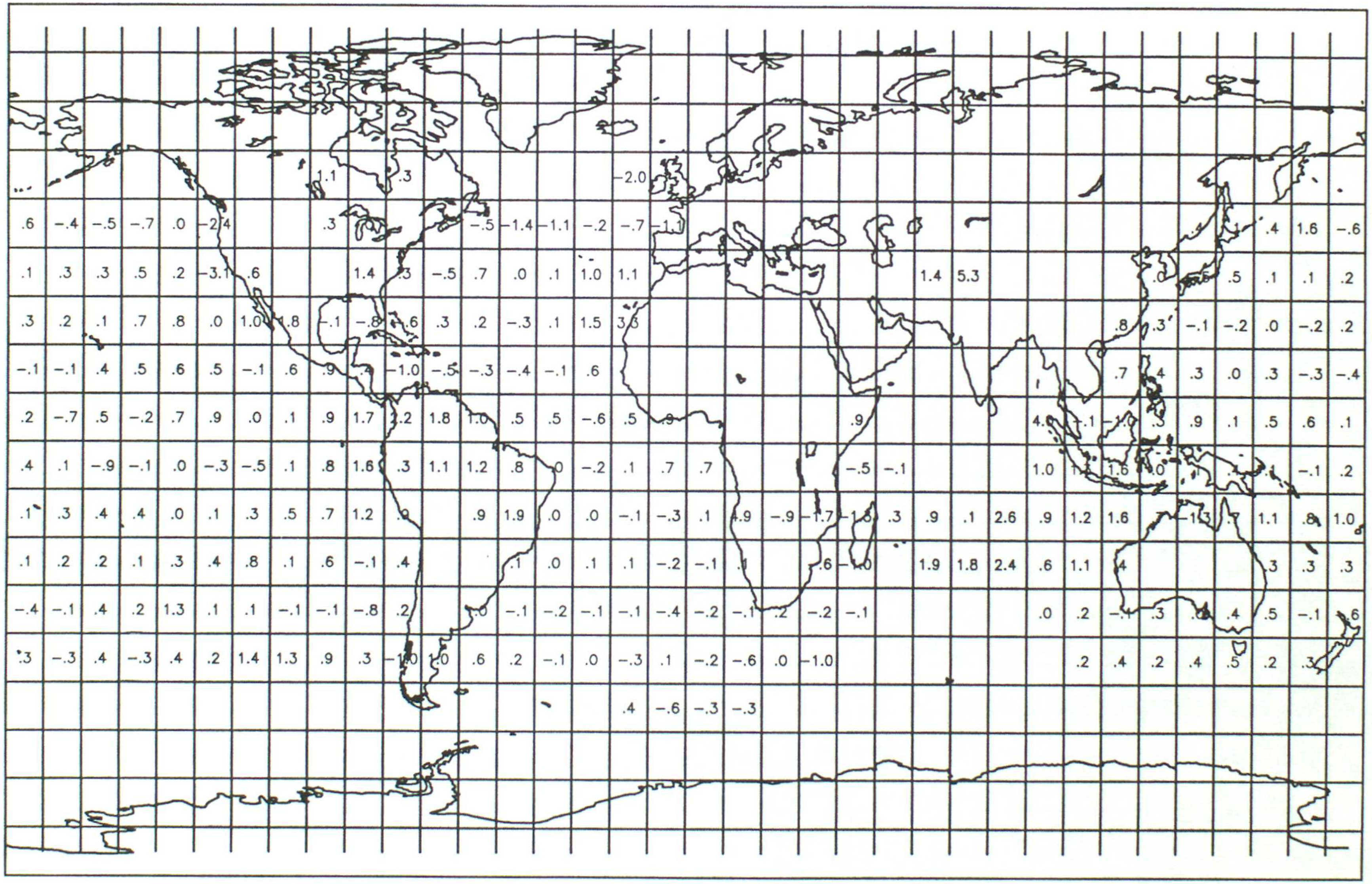

REPRESENTS 10 M/S

FIGURE 12

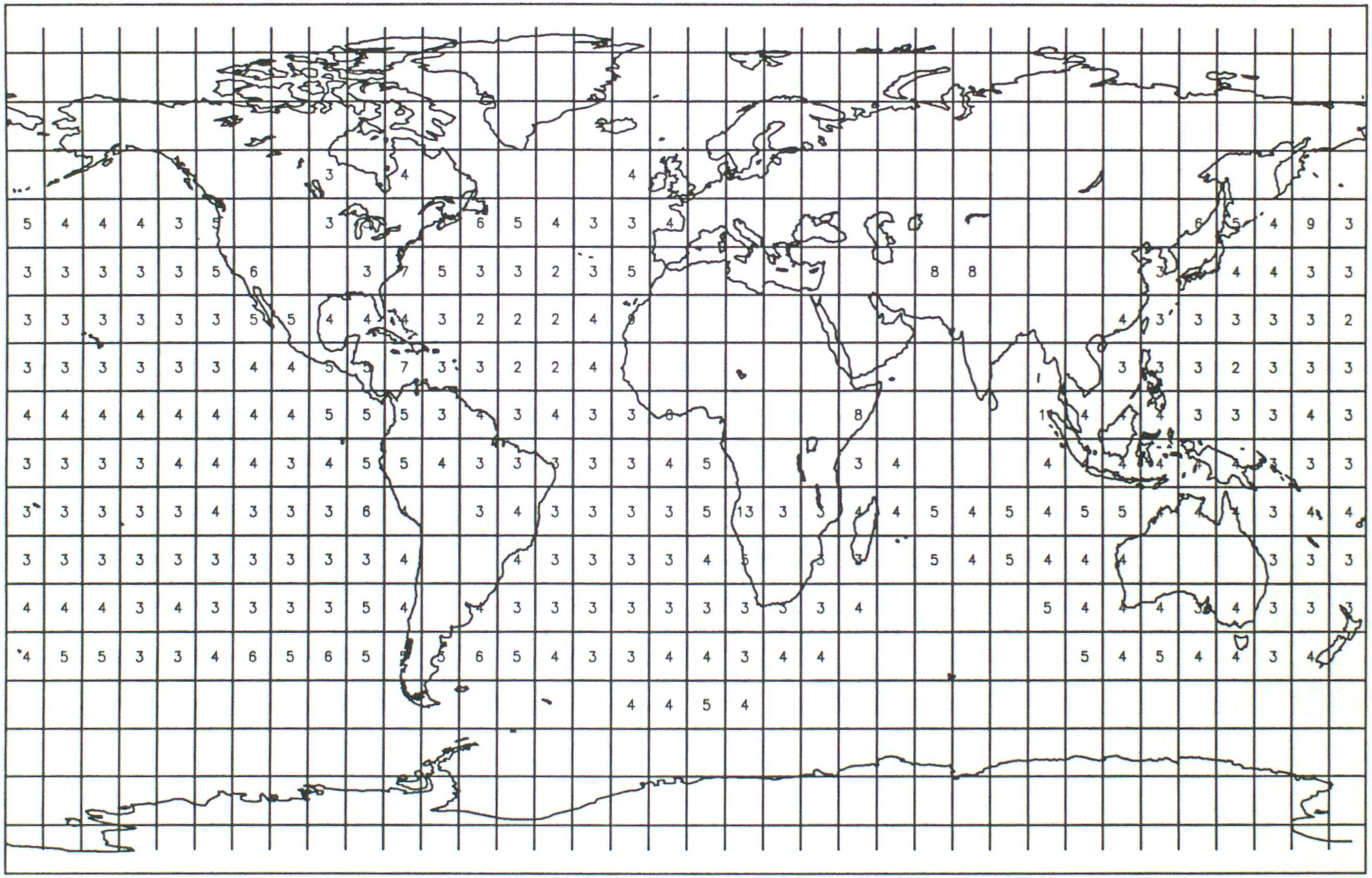
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA
JULY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

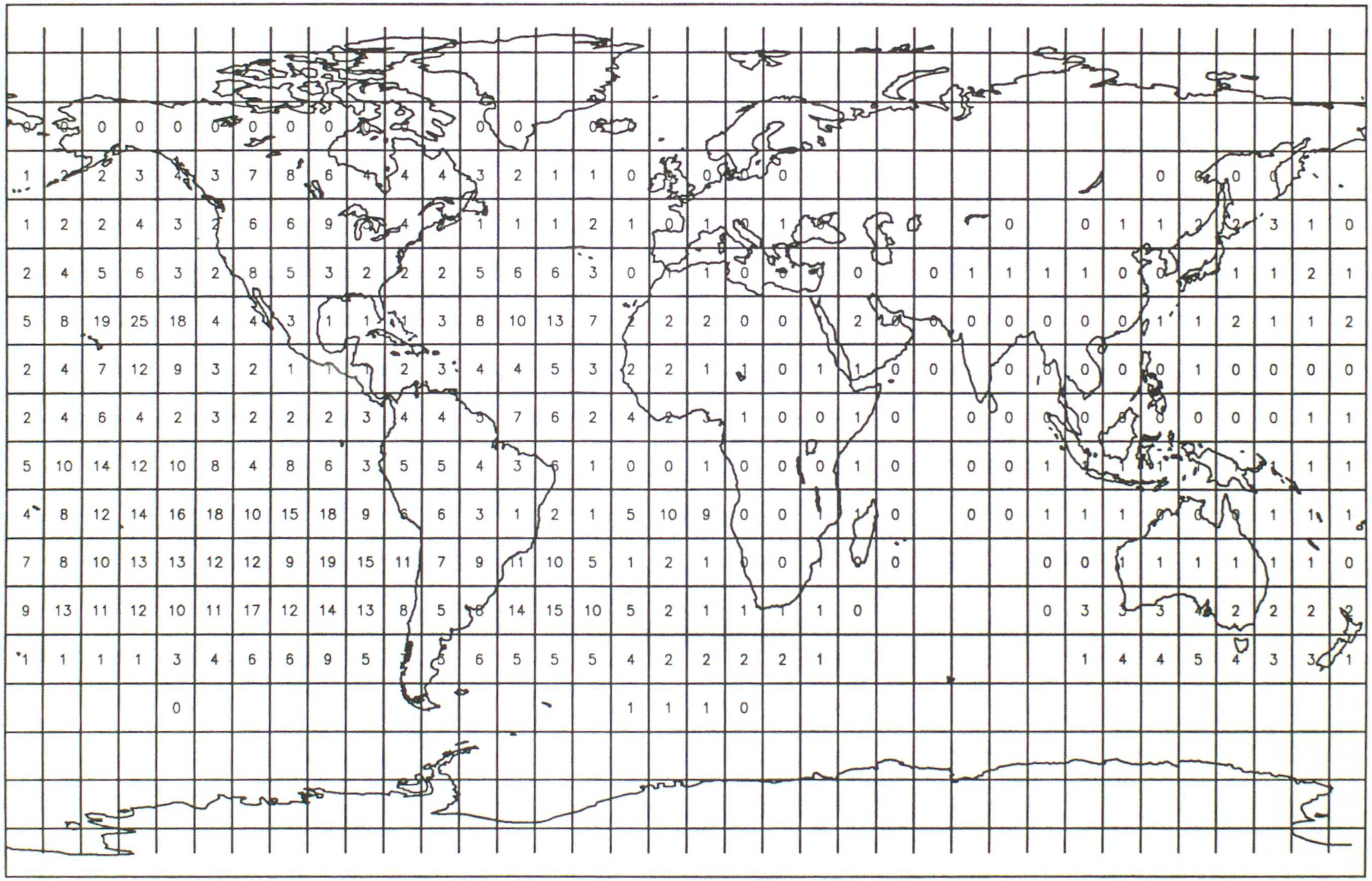
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
JULY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.1 .3 –2.0
.6 –.4 –.5 –.7 .0 –2.4 .3 –.5 –1.4 –1.1 –.2 –.7 –1.1 .4 .4 1.6 –.6
.1 .3 .3 .5 .2 –3.1 .6 1.4 .3 –.5 .7 .0 .1 1.0 1.1 1.4 5.3 .0 .5 .5 .1 .1 .2
.3 .2 .1 .7 .8 .0 1.0 1.8 –.1 –.8 .6 .3 .2 –.3 .1 1.5 3.3 .8 .3 –.1 –.2 .0 –.2 .2
–.1 –.1 .4 .5 .6 .5 –.1 .6 .9 .4 –1.0 –.5 –.3 –.4 –.1 .6 .7 .4 .3 .0 .3 –.3 –.4
.2 –.7 .5 –.2 .7 .9 .0 .1 .9 1.7 2.2 1.8 1.0 .5 .5 –.6 .5 .9 .9 4.0 –.1 –1.0 .3 .9 .1 .5 .6 .1
.4 .1 –.9 –.1 .0 –.3 –.5 .1 .8 1.6 .3 1.1 1.2 .8 .0 –.2 .1 .7 .7 –.5 –.1 1.0 1.1 1.6 .0 .1 –.1 .2
.1 .3 .4 .4 .0 .1 .3 .5 .7 1.2 .9 .9 1.9 .0 .0 –.1 –.3 .1 .9 –.9 –1.7 –1.6 .3 .9 .1 2.6 .9 1.2 1.6 .7 –1.3 .7 1.1 .8 1.0
.1 .2 .2 .1 .3 .4 .8 .1 .6 –.1 .4 .1 .0 .1 .1 –.2 –.1 .1 .6 –1.0 1.9 1.8 2.4 .6 1.1 .4 .3 .3 .3
–.4 –.1 .4 .2 1.3 .1 .1 –.1 –.1 –.8 .2 .0 –.1 –.2 –.1 –.1 –.4 –.2 –.1 .2 –.2 –.1 .0 .2 –.1 .3 .4 .4 .5 –.1 .6
.3 –.3 .4 –.3 .4 .2 1.4 1.3 .9 .3 –1.0 1.0 .6 .2 –.1 .0 –.3 .1 –.2 –.6 .0 –1.0 .2 .4 .2 .4 .5 .2 .3
.4 –.6 –.3 –.3

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
JULY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

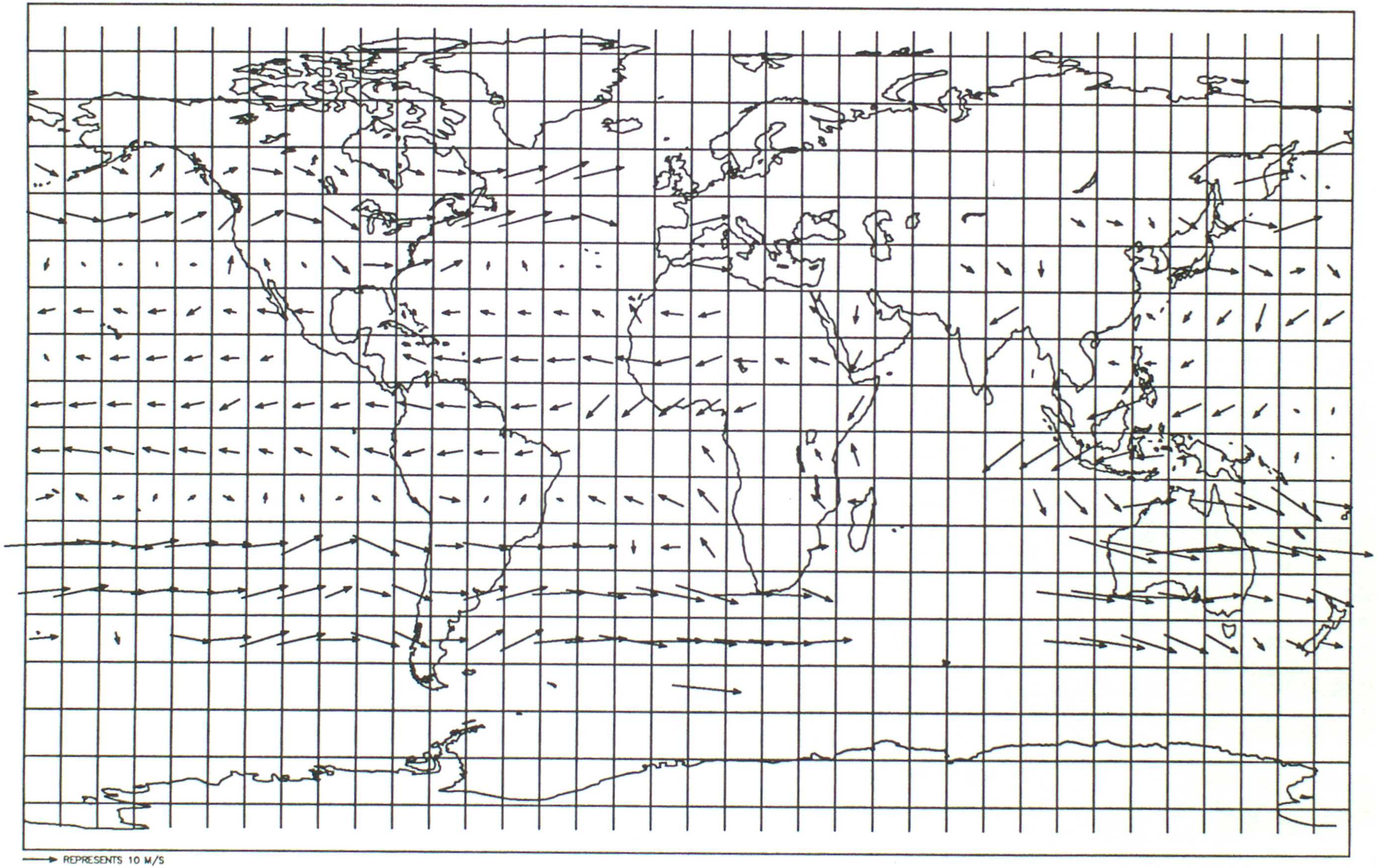

3 4 4
5 4 4 4 3 5 3 6 5 4 3 3 4 6 5 4 9 3
3 3 3 3 3 5 6 3 7 5 3 3 2 3 5 8 8 3 4 4 3 3
3 3 3 3 3 3 5 5 4 4 4 3 2 2 2 4 9 4 3 3 3 3 3 2
3 3 3 3 3 3 4 4 5 5 7 3 3 2 2 4 3 3 3 2 3 3 3
4 4 4 4 4 4 4 4 5 5 5 3 4 3 4 3 3 6 8 1 4 4 4 3 3 3 4 3
3 3 3 3 4 4 4 3 4 5 5 4 3 3 3 3 3 4 5 3 4 4 4 4 4 4 3 3 3
3 3 3 3 3 4 3 3 3 6 4 3 4 3 3 3 3 5 13 3 3 4 4 5 4 5 4 5 5 4 4 4 3 4 4
3 3 3 3 3 3 3 3 3 3 4 4 3 3 3 3 4 5 3 3 5 4 5 4 4 4 3 3 3
4 4 4 3 4 3 3 3 3 5 4 4 3 3 3 3 3 3 3 3 3 4 5 4 4 4 3 4 3 3 3
4 5 5 3 3 4 6 5 6 5 5 3 6 5 4 3 3 4 4 3 4 4 5 4 5 4 4 3 4
4 4 5 4

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
JULY 1996


0 0 0 0 0 0 0 0 0 0 0 0
1 2 2 3 4 3 7 8 6 4 4 4 3 2 1 1 0 0 0 0 0 0 0 0 0
1 2 2 4 3 2 6 6 9 4 1 1 1 2 1 0 1 0 1 0 0 0 1 1 2 2 3 1 0
2 4 5 6 3 2 8 5 3 2 2 2 5 6 6 3 0 1 1 0 0 0 0 0 1 1 1 1 0 0 1 1 2 1
5 8 19 25 18 4 4 3 1 1 1 3 8 10 13 7 2 2 2 0 0 2 0 0 0 0 0 0 0 1 1 2 1 1 2
2 4 7 12 9 3 2 1 1 1 2 3 4 4 5 3 2 2 1 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0 0
2 4 6 4 2 3 2 2 2 3 4 4 5 7 6 2 4 2 3 1 0 0 1 0 0 0 0 0 0 0 0 0 0 1 1
5 10 14 12 10 8 4 8 6 3 5 5 4 3 6 1 0 0 1 0 0 0 1 0 0 0 1 1 1 1 1 1
4 8 12 14 16 18 10 15 18 9 6 6 3 1 2 1 5 10 9 0 0 1 1 0 0 0 1 1 1 0 0 0 1 1 1
7 8 10 13 13 12 12 9 19 15 11 7 9 11 10 5 1 2 1 0 0 1 0 0 0 0 1 1 1 1 1 1 0
9 13 11 12 10 11 17 12 14 13 8 5 8 14 15 10 5 2 1 1 1 1 0 0 3 3 3 4 2 2 2 2
1 1 1 1 3 4 6 6 9 5 3 6 5 5 5 4 2 2 2 2 1 1 4 4 5 4 3 3 1
0 1 1 1 0

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
JULY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

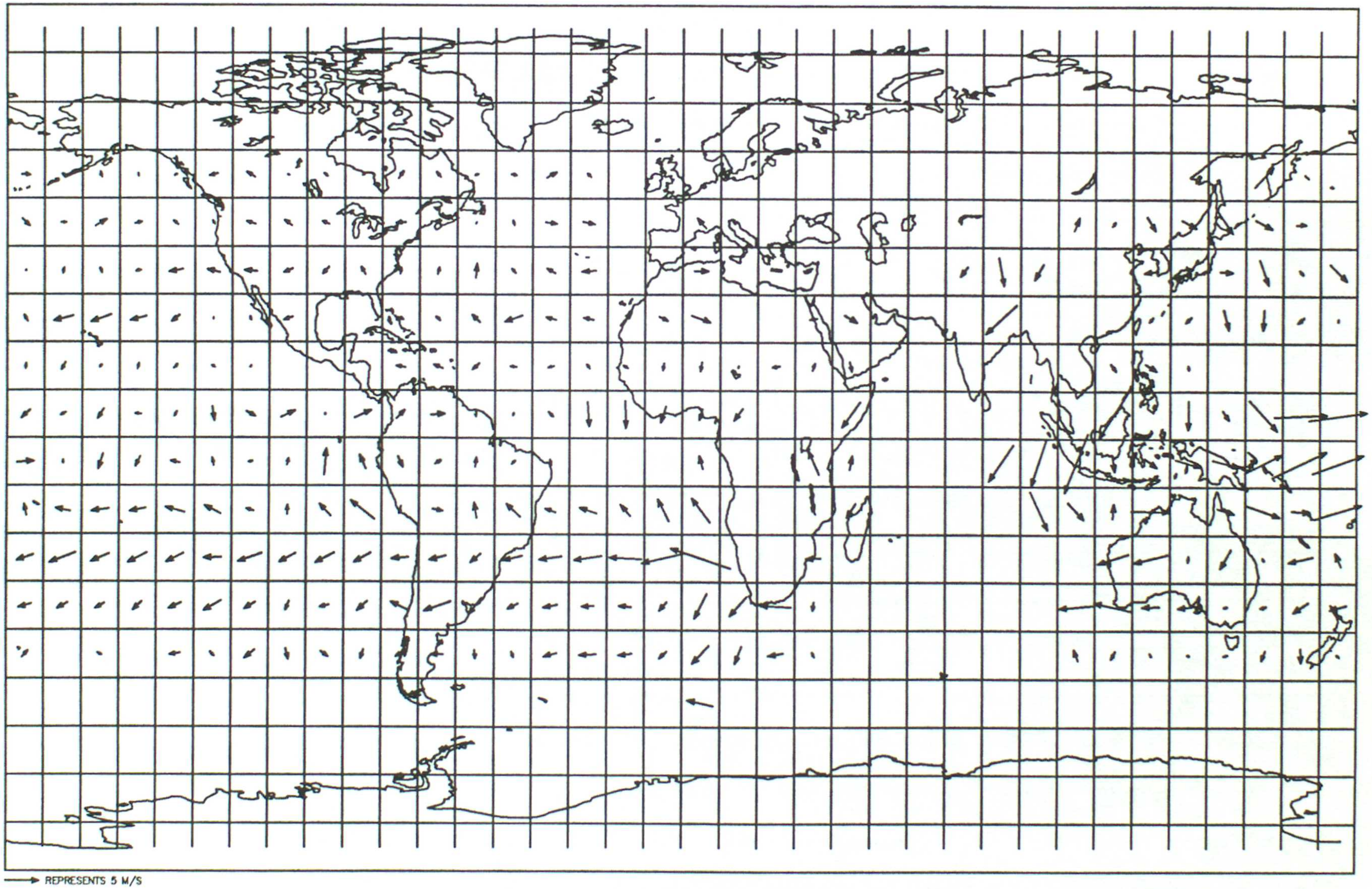
FIGURE 16


REPRESENTS 10 M/S

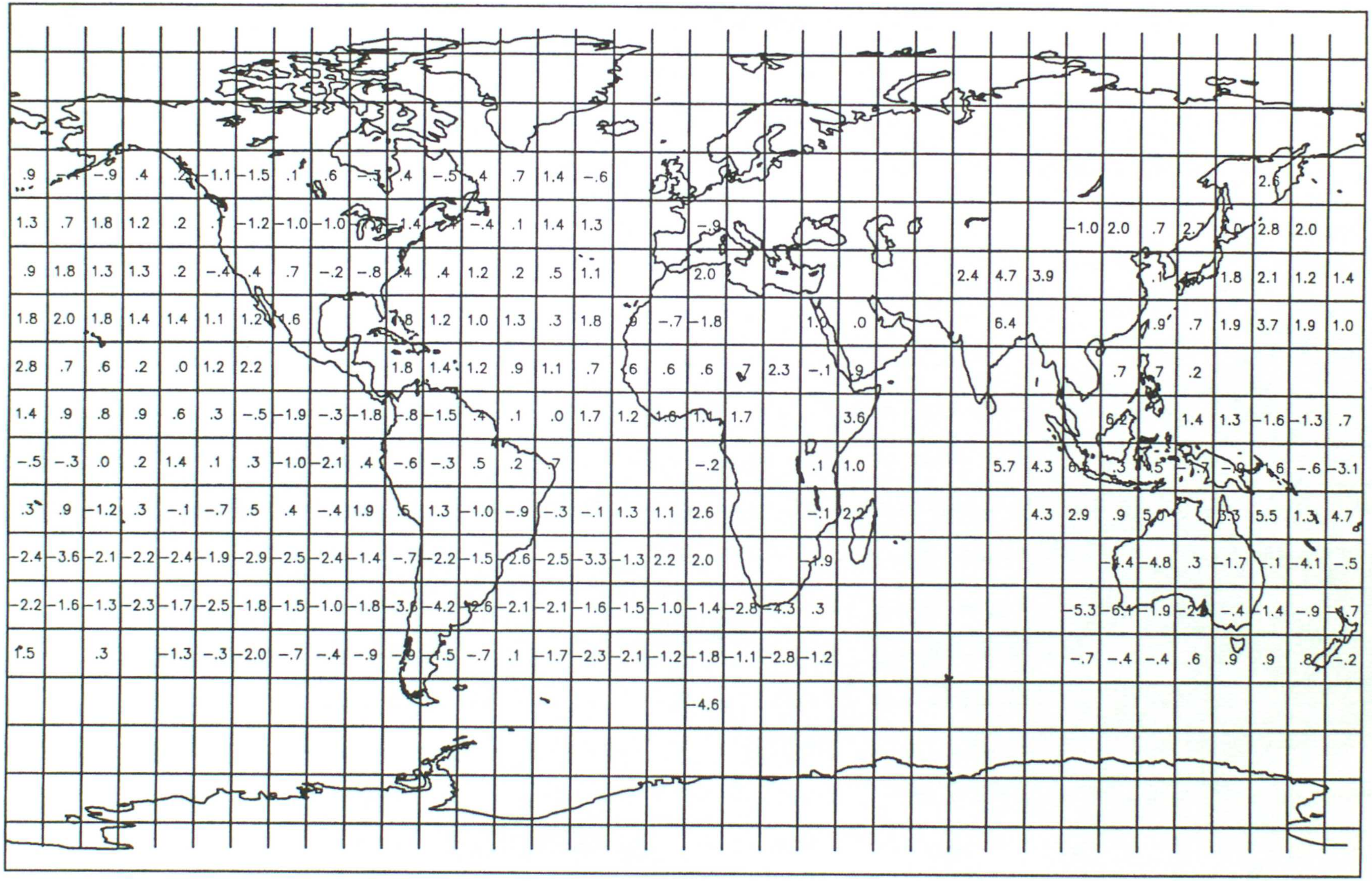
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA

FIGURE 17

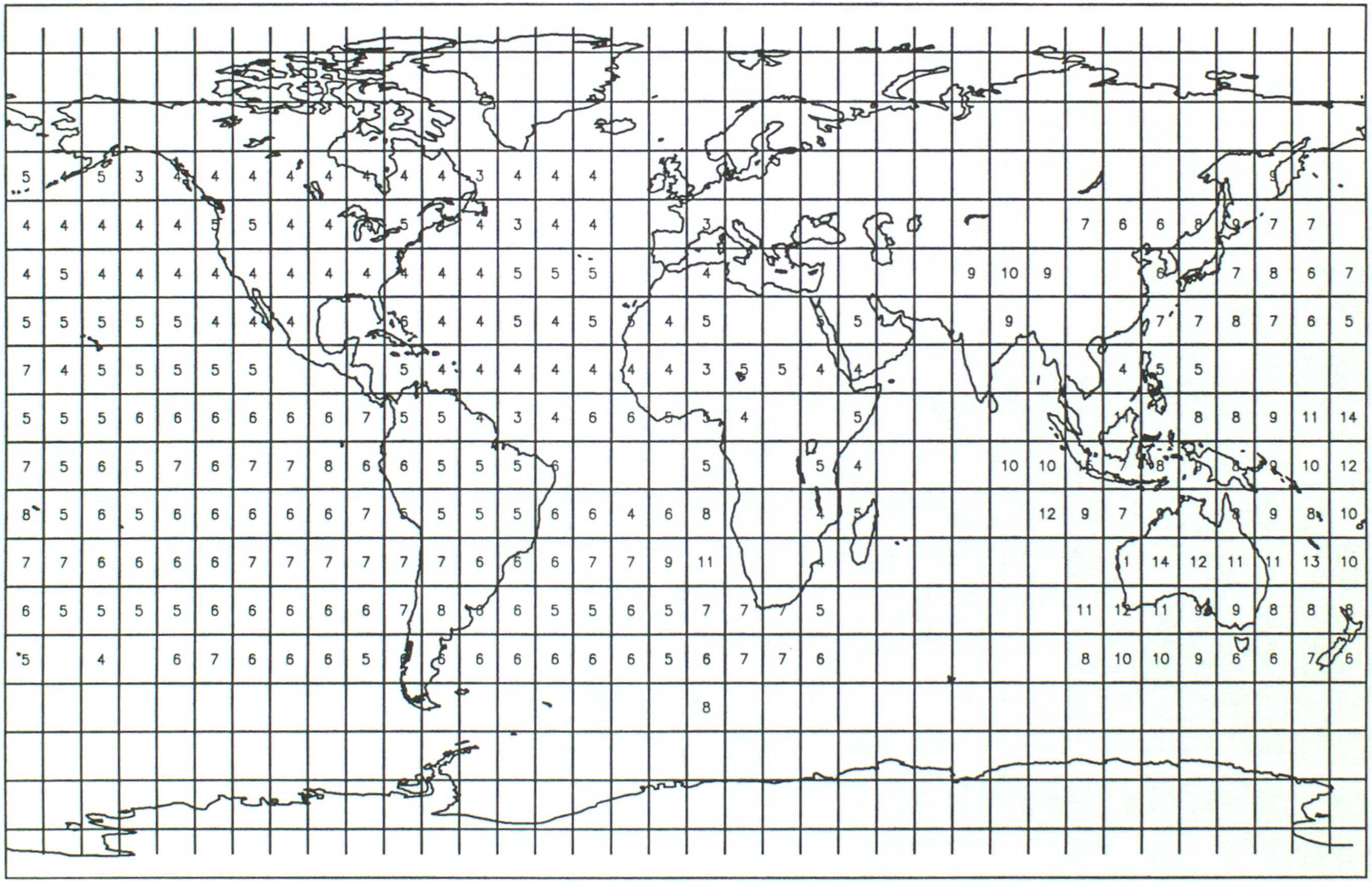
JULY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 5 M/S

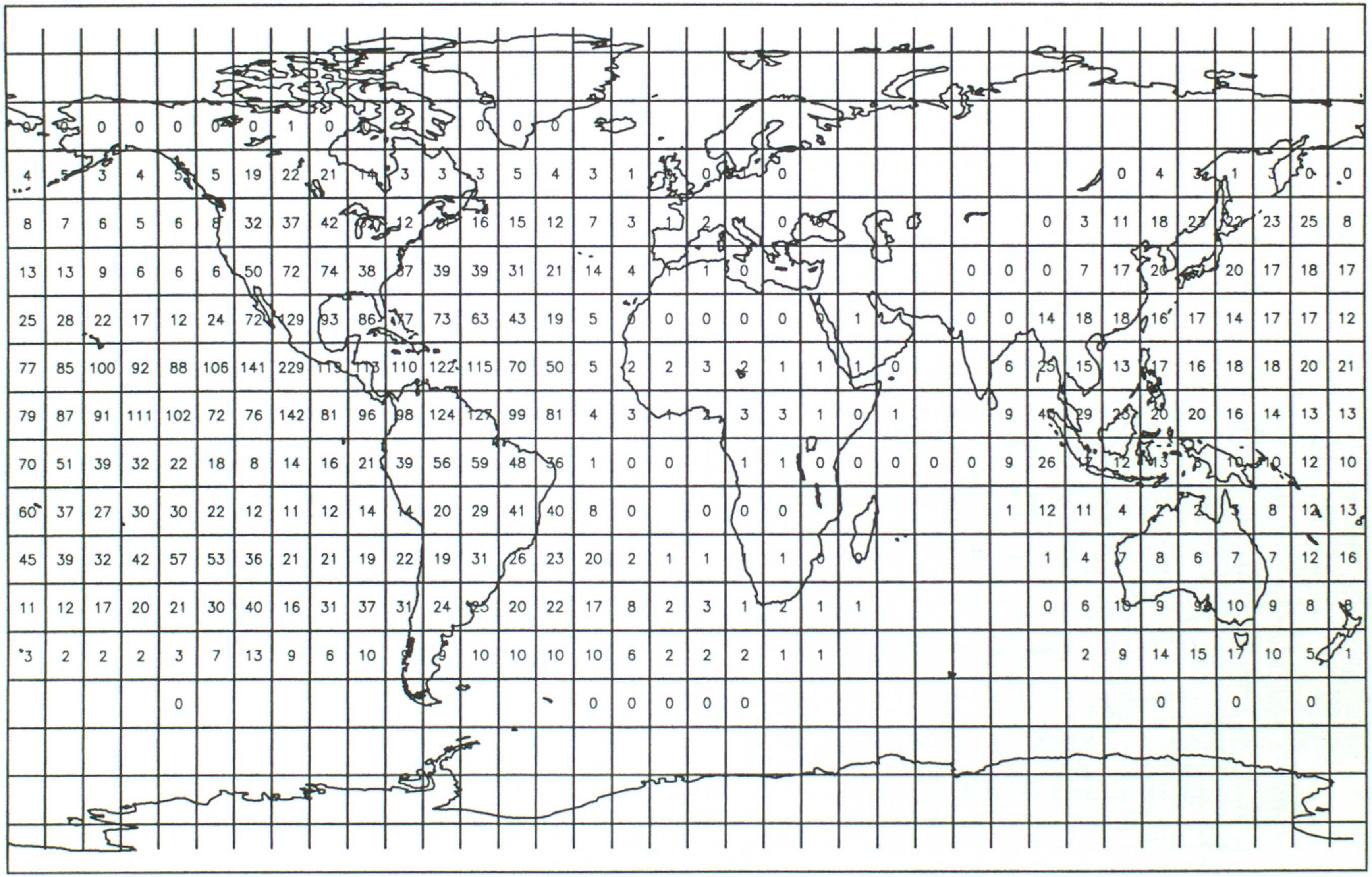
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
JULY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.9 -.4 -.9 .4 .2 -1.1 -1.5 .1 .6 -.3 .4 -.5 .4 .7 1.4 -.6 2.6
1.3 .7 1.8 1.2 .2 .1 -1.2 -1.0 -1.0 -1.4 -.4 .1 1.4 1.3 -.9 -1.0 2.0 .7 2.7 1.0 2.8 2.0
.9 1.8 1.3 1.3 .2 -.4 .4 .7 -.2 -.8 .4 .4 1.2 .2 .5 1.1 2.0 2.4 4.7 3.9 .1 1.8 2.1 1.2 1.4
1.8 2.0 1.8 1.4 1.4 1.1 1.2 1.6 1.8 1.2 1.0 1.3 .3 1.8 .9 -.7 -1.8 1.0 .0 6.4 1.9 .7 1.9 3.7 1.9 1.0
2.8 .7 .6 .2 .0 1.2 2.2 1.8 1.4 1.2 .9 1.1 .7 .6 .6 .6 .7 2.3 -.1 .9 .7 .7 .2
1.4 .9 .8 .9 .6 .3 -.5 -1.9 -.3 -1.8 -.8 -1.5 .4 .1 .0 1.7 1.2 1.6 1.1 1.7 3.6 6.2 1.4 1.3 -1.6 -1.3 .7
-.5 -.3 .0 .2 1.4 .1 .3 -1.0 -2.1 .4 -.6 -.3 .5 .2 .7 -.2 .1 1.0 5.7 4.3 6.5 .3 .5 -1.7 -.9 1.6 -.6 -3.1
.3 .9 -1.2 .3 -.1 -.7 .5 .4 -.4 1.9 .5 1.3 -1.0 -.9 -.3 -.1 1.3 1.1 2.6 -.1 2.2 4.3 2.9 .9 5.0 3.3 5.5 1.3 4.7
-2.4 -3.6 -2.1 -2.2 -2.4 -1.9 -2.9 -2.5 -2.4 -1.4 -.7 -2.2 -1.5 -2.6 -2.5 -3.3 -1.3 2.2 2.0 -1.9 -4.4 -4.8 .3 -1.7 -.1 -4.1 -.5
-2.2 -1.6 -1.3 -2.3 -1.7 -2.5 -1.8 -1.5 -1.0 -1.8 -3.6 -4.2 -2.6 -2.1 -2.1 -1.6 -1.5 -1.0 -1.4 -2.8 -4.3 .3 -5.3 -6.1 -1.9 -2.1 -.4 -1.4 -.9 4.7
1.5 .3 -1.3 -.3 -2.0 -.7 -.4 -.9 -.9 1.5 -.7 .1 -1.7 -2.3 -2.1 -1.2 -1.8 -1.1 -2.8 -1.2 -.7 -.4 -.4 .6 .9 .9 .8 -.2
-4.6

SATOBS : RMS O−B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
JULY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


5 4 5 3 4 4 4 4 4 4 4 4 3 4 4 4 9
4 4 4 4 4 5 5 4 4 4 5 4 3 4 4 3 7 6 6 8 9 7 7
4 5 4 4 4 4 4 4 4 4 4 4 4 5 5 5 4 9 10 9 6 7 8 6 7
5 5 5 5 5 4 4 4 6 4 4 5 4 5 5 4 5 5 5 9 7 7 8 7 6 5
7 4 5 5 5 5 5 5 4 4 4 4 4 4 4 3 5 5 4 4 4 5 5
5 5 5 6 6 6 6 6 6 7 5 5 4 3 4 6 6 5 3 4 5 11 8 8 9 11 14
7 5 6 5 7 6 7 7 8 6 6 5 5 5 6 5 5 4 10 10 7 8 9 8 9 10 12
8 5 6 5 6 6 6 6 6 7 5 5 5 5 6 6 4 6 8 4 5 12 9 7 8 8 9 8 10
7 7 6 6 6 6 7 7 7 7 7 7 6 6 6 7 7 9 11 4 1 14 12 11 11 13 10
6 5 5 5 5 6 6 6 6 6 7 8 6 6 5 5 6 5 7 7 7 5 11 12 11 9 9 8 8 8
5 4 6 7 6 6 6 5 6 6 6 6 6 6 6 5 6 7 7 6 8 10 10 9 6 6 7 6
8

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
JULY 1996



0	0	0	0	0	0	0	1	0	0	0		0	0	0																					
4	5	3	4	5	5	19	22	21	14	3	3	3	5	4	3	1	0	0	1	0									0	4	3	1	3	0	0
8	7	6	5	6	8	32	37	42	24	12	[illegible]	16	15	12	7	3	1	2	[illegible]	0	0						0	3	11	18	23	22	23	25	8
13	13	9	6	6	6	50	72	74	38	37	39	39	31	21	14	4	1	1	0						0	0	0	7	17	20		20	17	18	17
25	28	22	17	12	24	72	129	93	86	77	73	63	43	19	5	0	0	0	0	0	0	1			0	0	14	18	18	16	17	14	17	17	12
77	85	100	92	88	106	141	229	113	113	110	122	115	70	50	5	2	2	3	2	1	1	1	0			6	25	15	13	17	16	18	18	20	21
79	87	91	111	102	72	76	142	81	96	98	124	127	99	81	4	3	1	2	3	3	1	0	1			9	45	29	25	20	20	16	14	13	13
70	51	39	32	22	18	8	14	16	21	39	56	59	48	36	1	0	0		1	1	0	0	0	0	0	9	26	17	12	13	8	10	10	12	10
60	37	27	30	30	22	12	11	12	14	14	20	29	41	40	8	0		0	0	0						1	12	11	4	2	2	3	8	12	13
45	39	32	42	57	53	36	21	21	19	22	19	31	26	23	20	2	1	1	1	1	0						1	4	7	8	6	7	7	12	16
11	12	17	20	21	30	40	16	31	37	31	24	23	20	22	17	8	2	3	1	2	1	1					0	6	10	9	9	10	9	8	8
3	2	2	2	3	7	13	9	6	10	9	9	10	10	10	10	6	2	2	2	1	1							2	9	14	15	17	10	5	1
				0											0	0	0	0	0											0		0		0	

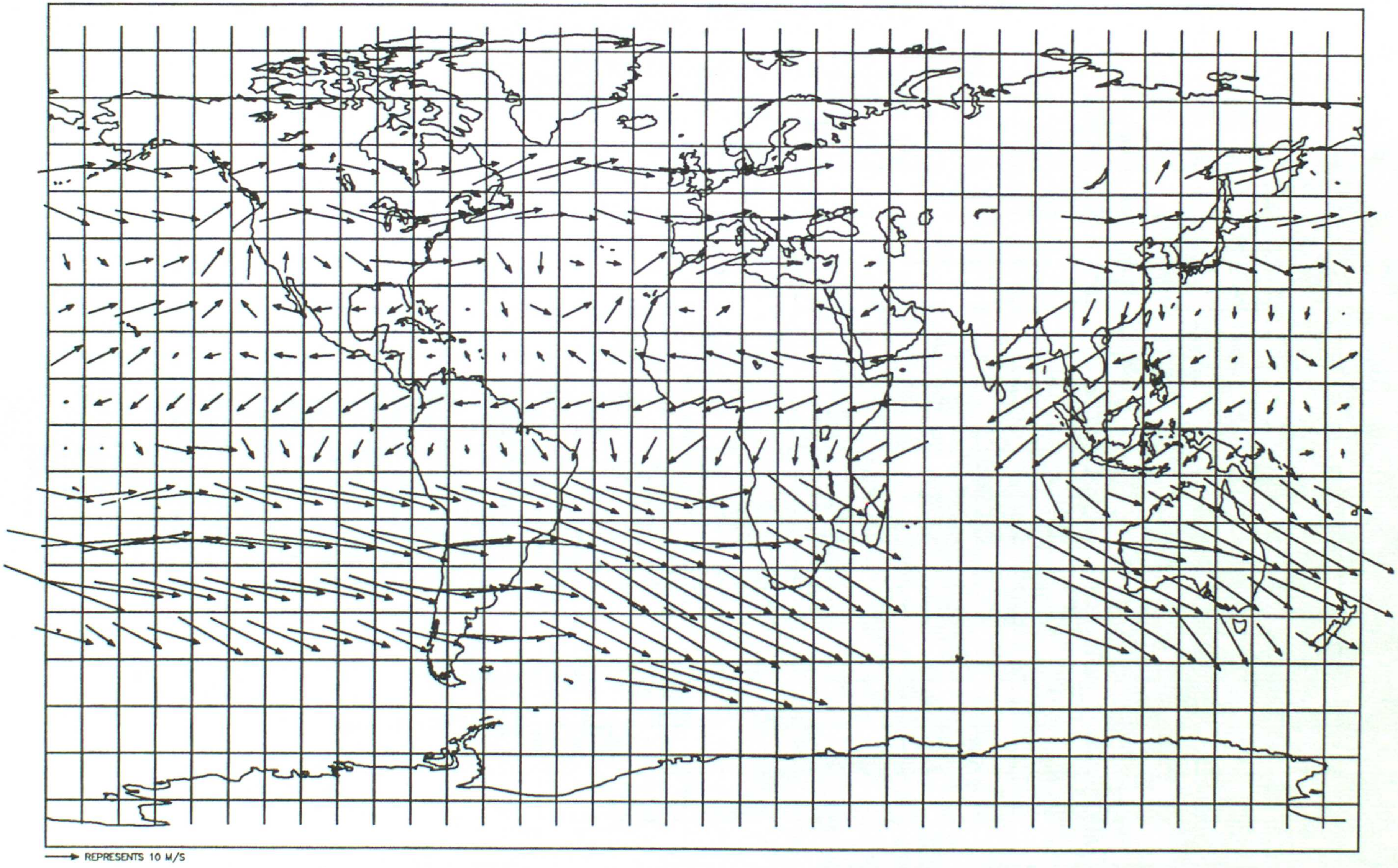
SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA

JULY 1996

ALL OBSERVATIONS

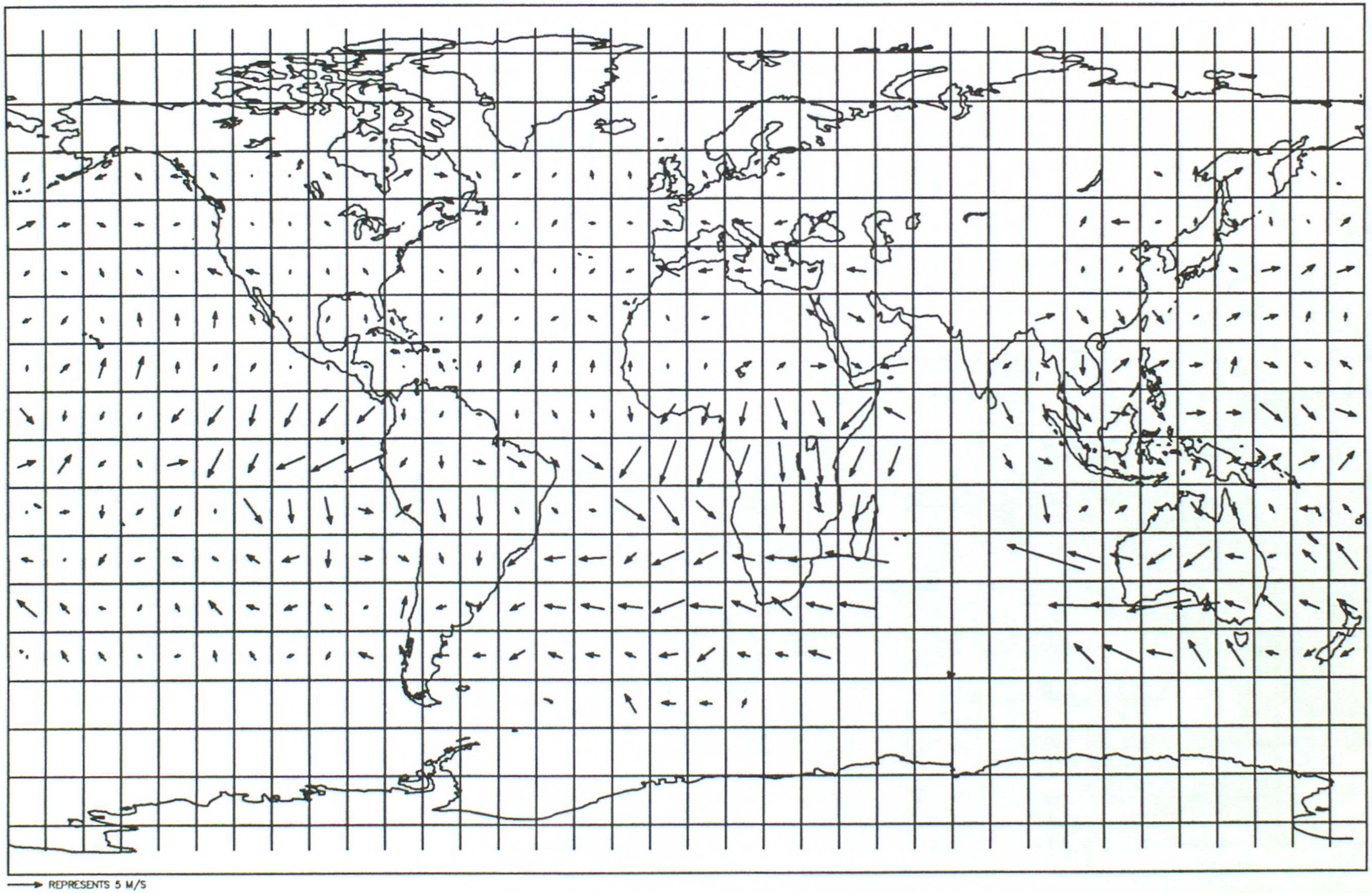
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

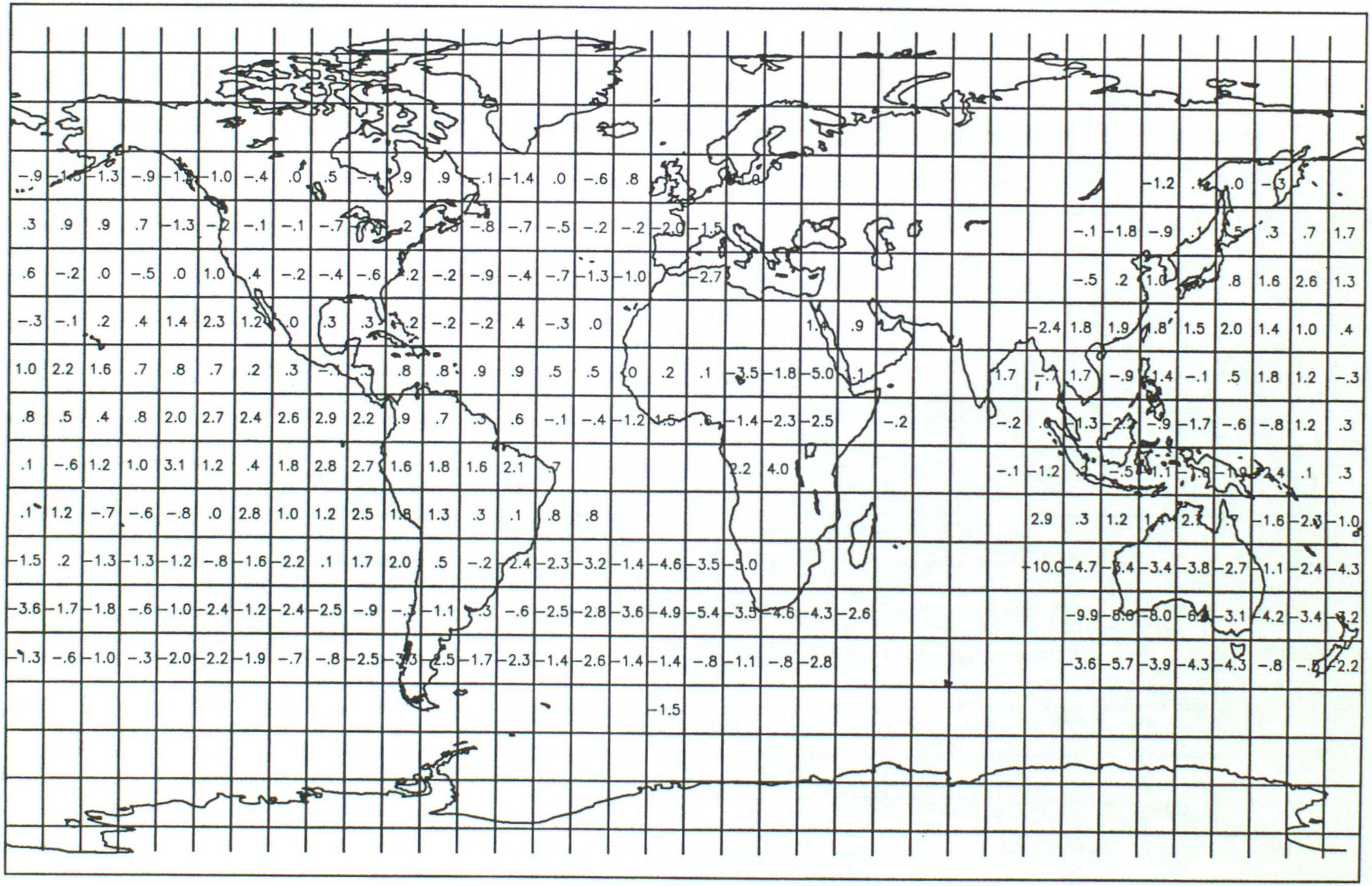

REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA
JULY 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

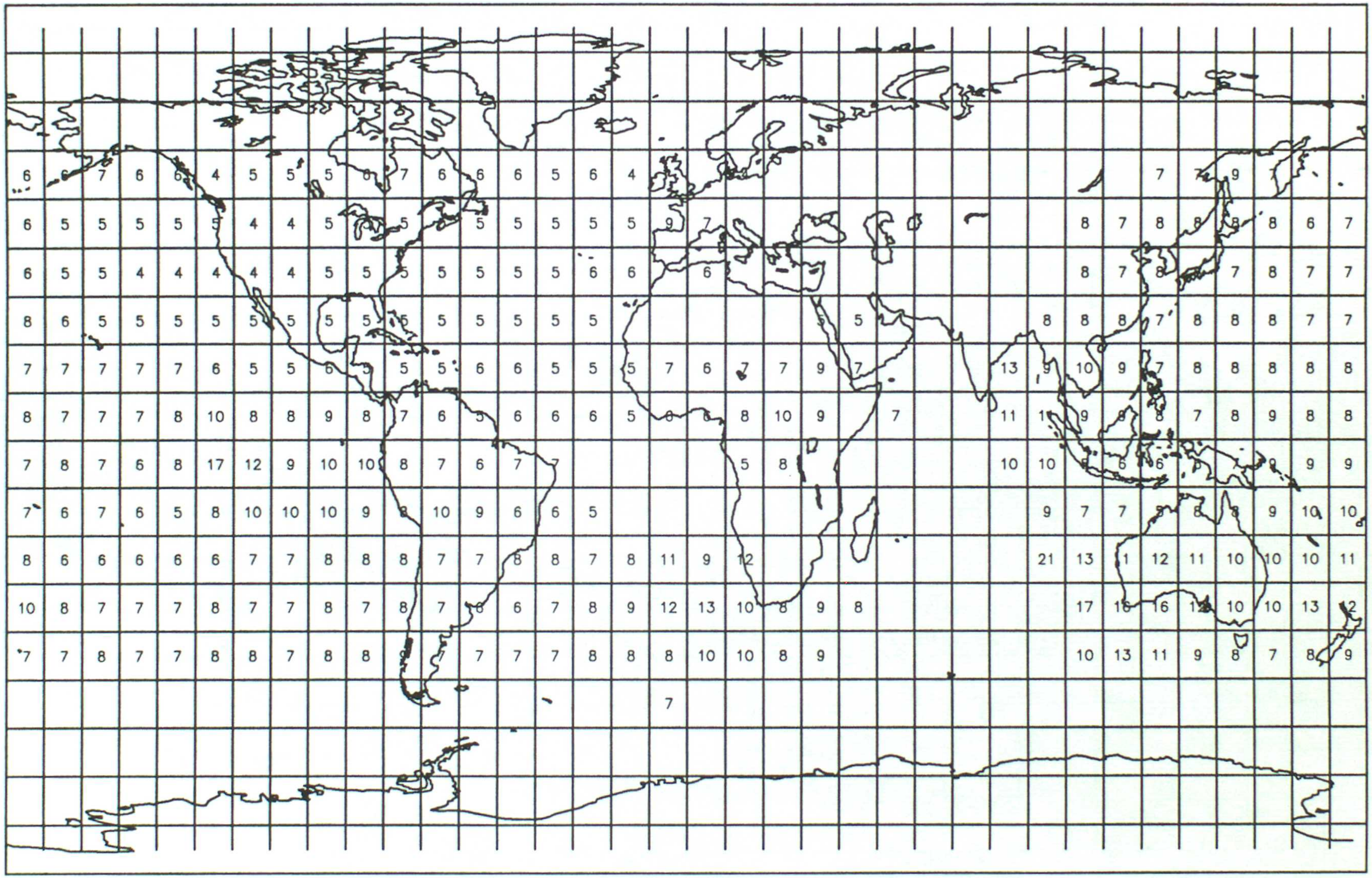
FIGURE 22


→ REPRESENTS 5 M/S

SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
JULY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.9 -1.3 -.9 -1.0 -.4 .0 .5 -.4 .9 .9 -.1 -1.4 .0 -.6 .8 -1.2 .0 -.3
.3 .9 .9 .7 -1.3 -.2 -.1 -.1 -.7 .2 -.8 -.7 -.5 -.2 -.2 -2.0 -1.5 -.1 -1.8 -.9 .3 .7 1.7
.6 -.2 .0 -.5 .0 1.0 .4 -.2 -.4 -.6 .2 -.2 -.9 -.4 -.7 -1.3 -1.0 -2.7 -.5 .2 1.0 .8 1.6 2.6 1.3
-.3 -.1 .2 .4 1.4 2.3 1.2 .0 .3 .3 .2 -.2 -.2 .4 -.3 .0 .9 -2.4 1.8 1.9 .8 1.5 2.0 1.4 1.0 .4
1.0 2.2 1.6 .7 .8 .7 .2 .3 .8 .8 .9 .9 .5 .5 .0 .2 .1 -3.5 -1.8 -5.0 1.7 1.7 -.9 1.4 -.1 .5 1.8 1.2 -.3
.8 .5 .4 .8 2.0 2.7 2.4 2.6 2.9 2.2 .9 .7 .6 -.1 -.4 -1.2 -1.4 -2.3 -2.5 -.2 -.2 -1.3 -.9 -1.7 -.6 -.8 1.2 .3
.1 -.6 1.2 1.0 3.1 1.2 .4 1.8 2.8 2.7 1.6 1.8 1.6 2.1 2.2 4.0 -.1 -1.2 -.5 .1 .3
.1 1.2 -.7 -.6 -.8 .0 2.8 1.0 1.2 2.5 1.3 .3 .1 .8 .8 2.9 .3 1.2 -1.6 -1.0
-1.5 .2 -1.3 -1.3 -1.2 -.8 -1.6 -2.2 .1 1.7 2.0 .5 -.2 -2.4 -2.3 -3.2 -1.4 -4.6 -3.5 -10.0 -4.7 -3.4 -3.8 -2.7 -1.1 -2.4 -4.3
-3.6 -1.7 -1.8 -.6 -1.0 -2.4 -1.2 -2.4 -2.5 -.9 -1.1 -.6 -2.5 -2.8 -3.6 -4.9 -5.4 -3.5 -4.3 -2.6 -9.9 -8.0 -3.1 -4.2 -3.4
-1.3 -.6 -1.0 -.3 -2.0 -2.2 -1.9 -.7 -.8 -2.5 -1.7 -2.3 -1.4 -2.6 -1.4 -1.4 -.8 -1.1 -.8 -2.8 -3.6 -5.7 -3.9 -4.3 -.8 -2.2
-1.5

SATOBS : RMS O−B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
JULY 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


6 6 7 6 6 4 5 5 5 6 7 6 6 6 5 6 4 7 7 9 7
6 5 5 5 5 5 4 4 5 5 5 5 5 5 5 5 5 9 7 8 7 8 8 8 8 6 7
6 5 5 4 4 4 4 4 5 5 5 5 5 5 5 6 6 6 8 7 8 7 8 7 7
8 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 8 8 8 7 8 8 8 7 7
7 7 7 7 7 6 5 5 6 5 5 5 6 6 5 5 5 5 7 6 7 7 9 7 13 9 10 9 7 8 8 8 8 8
8 7 7 7 8 10 8 8 9 8 7 6 5 6 6 6 5 6 6 8 10 9 7 11 11 9 8 8 7 8 9 8 8
7 8 7 6 8 17 12 9 10 10 8 7 6 7 7 5 8 10 10 6 6 6 6 9 9 9
7 6 7 6 5 8 10 10 10 9 8 10 9 6 6 5 9 7 7 8 8 8 9 10 10
8 6 6 6 6 6 7 7 8 8 8 7 7 8 8 7 8 11 9 12 21 13 11 12 11 10 10 10 11
10 8 7 7 7 8 7 7 8 7 8 7 6 6 7 8 9 12 13 10 8 9 8 17 16 16 12 10 10 13 12
7 7 8 7 7 8 8 7 8 8 9 7 7 7 7 8 8 8 10 10 8 9 10 13 11 9 8 7 8 9
7

MONITORING OF SATELLITE TEMPERATURES

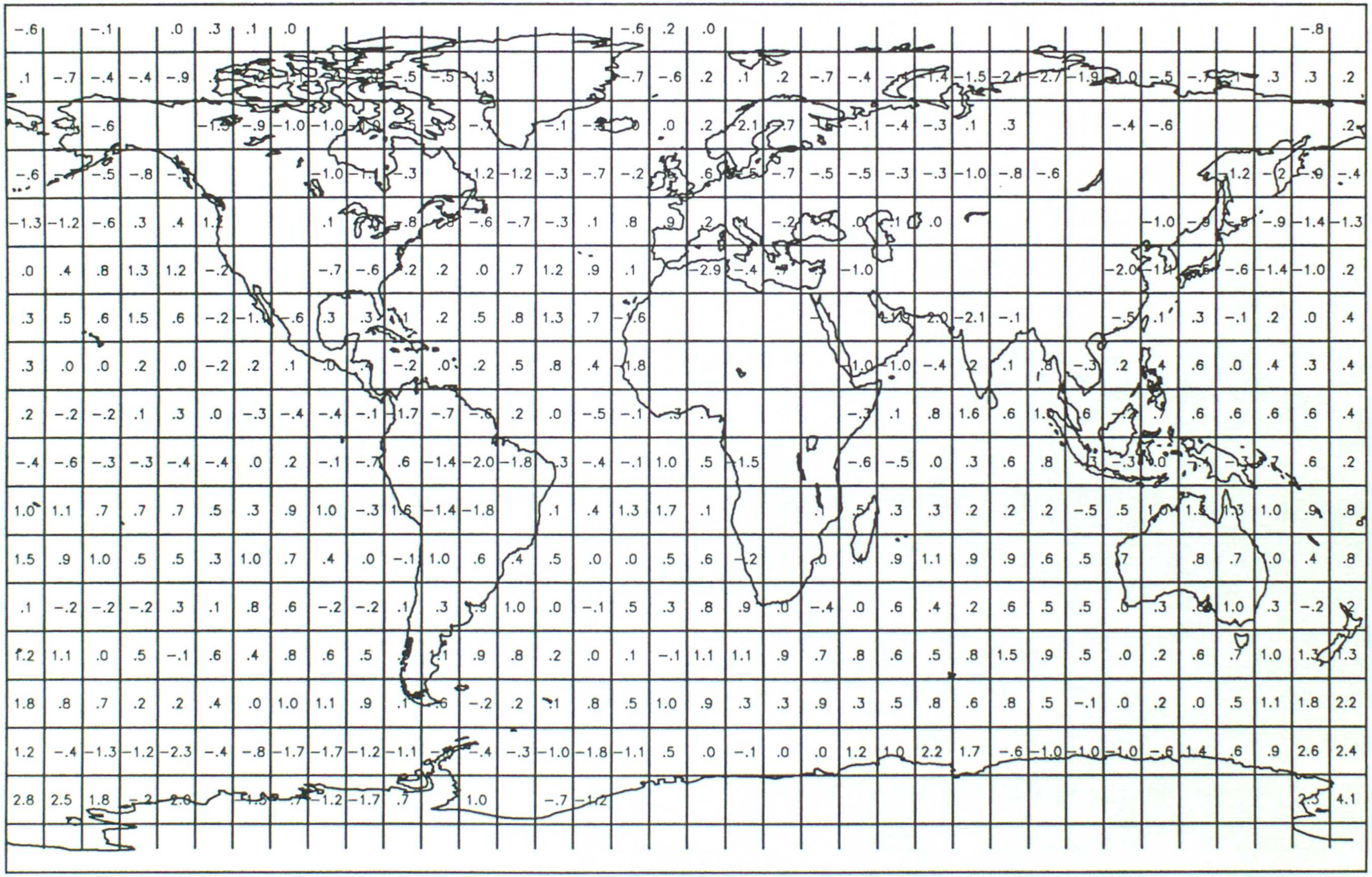
MONITORING CENTRE: BRACKNELL

MONTH: July, 1996

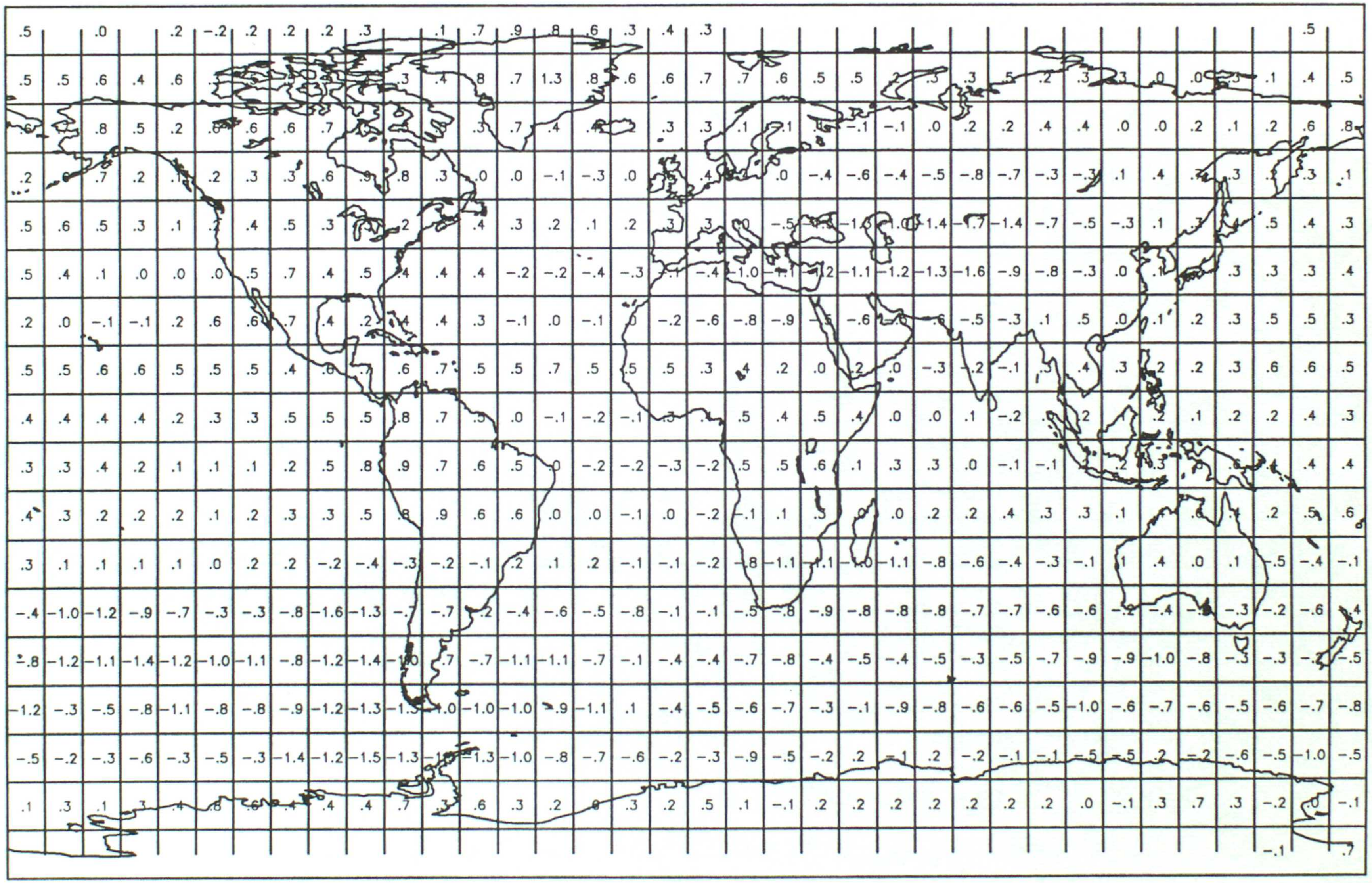
Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from NOAA-12, NOAA-14 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer: 850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa :Mean observation minus background temperature differences

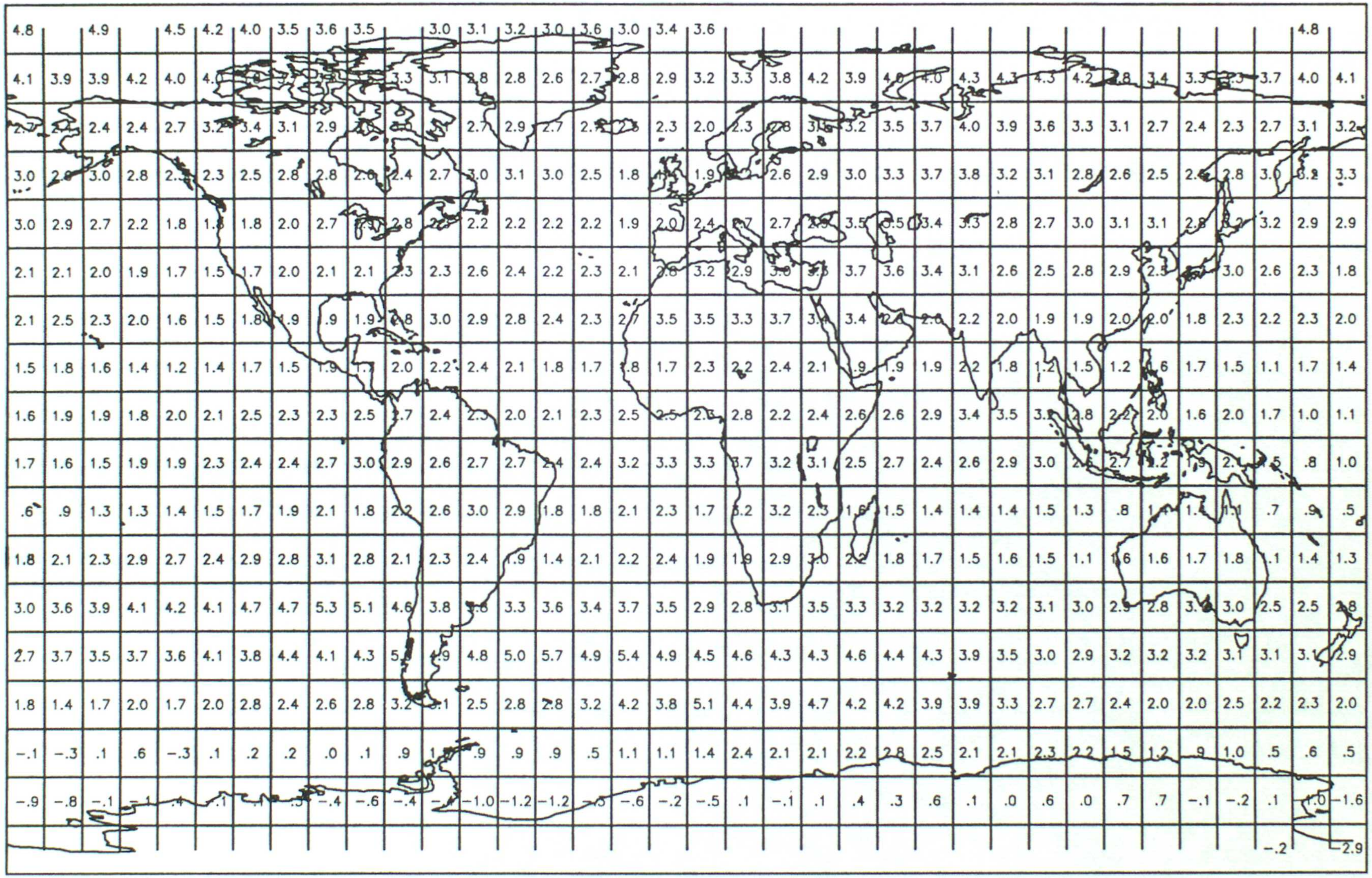
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JULY 1996
FIGURE 25
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


-.6 -.1 .0 .3 .1 .0 -.6 .2 .0 -.8
.1 -.7 -.4 -.4 -.9 -.5 -.5 1.3 -.7 -.6 .2 .1 .2 -.7 -.4 1.4 -1.5 -2.4 -2.7 -1.9 1.0 -.5 .3 .3 .2
-.6 -1.5 -.9 -1.0 -1.0 -.1 .0 .2 2.1 .7 -.1 -.4 -.3 .1 .3 -.4 -.6 .2
-.6 -.5 -.8 -1.0 -.3 1.2 -1.2 -.3 -.7 -.2 .6 -.7 -.5 -.5 -.3 -.3 -1.0 -.8 -.6 1.2 -.2 .9 -.4
-1.3 -1.2 -.6 .3 .4 1.2 .1 .8 -.6 -.7 -.3 .1 .8 .9 .2 -.2 .0 .1 .0 -1.0 -.9 -.8 -.9 -1.4 -1.3
.0 .4 .8 1.3 1.2 -.2 -.7 -.6 .2 .2 .0 .7 1.2 .9 .1 -2.9 -.4 -1.0 -2.0 -1.4 -.6 -1.4 -1.0 .2
.3 .5 .6 1.5 .6 -.2 -1.1 -.6 .3 .3 .1 .2 .5 .8 1.3 .7 -1.6 1.9 2.0 -2.1 -.1 -.5 .1 .3 -.1 .2 .0 .4
.3 .0 .0 .2 .0 -.2 .2 .1 .0 -.2 .0 .2 .5 .8 .4 1.8 1.0 -1.0 -.4 .2 .1 .8 -.3 .2 .4 .6 .0 .4 .3 .4
.2 -.2 -.2 .1 .3 .0 -.3 -.4 -.4 -.1 -1.7 -.7 -.6 .2 .0 -.5 -.1 -.3 .1 .8 1.6 .6 1.6 .6 .6 .6 .6 .4
-.4 -.6 -.3 -.3 -.4 -.4 .0 .2 -.1 -.7 .6 -1.4 -2.0 -1.8 .3 -.4 -.1 1.0 .5 1.5 -.6 -.5 .0 .3 .6 .8 -.3 .0 -.3 .7 .6 .2
1.0 1.1 .7 .7 .7 .5 .3 .9 1.0 -.3 1.6 -1.4 -1.8 .1 .4 1.3 1.7 .1 .5 .3 .3 .2 .2 .2 -.5 .5 1.0 1.3 1.3 1.0 .9 .8
1.5 .9 1.0 .5 .5 .3 1.0 .7 .4 .0 -.1 1.0 .6 .4 .5 .0 .0 .5 .6 -.2 .0 .4 .9 1.1 .9 .9 .6 .5 .7 .8 .7 1.0 .4 .8
.1 -.2 -.2 -.2 .3 .1 .8 .6 -.2 -.2 .1 .3 .9 1.0 .0 -.1 .5 .3 .8 .9 .0 -.4 .0 .6 .4 .2 .6 .5 .5 .0 .3 .6 1.0 .3 -.2 .2
1.2 1.1 .0 .5 -.1 .6 .4 .8 .6 .5 .1 .9 .8 .2 .0 .1 -.1 1.1 1.1 .9 .7 .8 .6 .5 .8 1.5 .9 .5 .0 .2 .6 .7 1.0 1.3 1.3
1.8 .8 .7 .2 .2 .4 .0 1.0 1.1 .9 .1 .6 -.2 .2 .1 .8 .5 1.0 .9 .3 .3 .9 .3 .5 .8 .6 .8 .5 -.1 .0 .2 .0 .5 1.1 1.8 2.2
1.2 -.4 -1.3 -1.2 -2.3 -.4 -.8 -1.7 -1.7 -1.2 -1.1 -.4 -.3 -1.0 -1.8 -1.1 .5 .0 -.1 .0 .0 1.2 1.0 2.2 1.7 -.6 -1.0 -1.0 -1.0 -.6 1.4 .6 .9 2.6 2.4
2.8 2.5 1.8 -.2 2.0 -1.5 .7 -1.2 -1.7 .7 1.0 -.7 -1.2 2.3 4.1

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JULY 1996
FIGURE 26
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

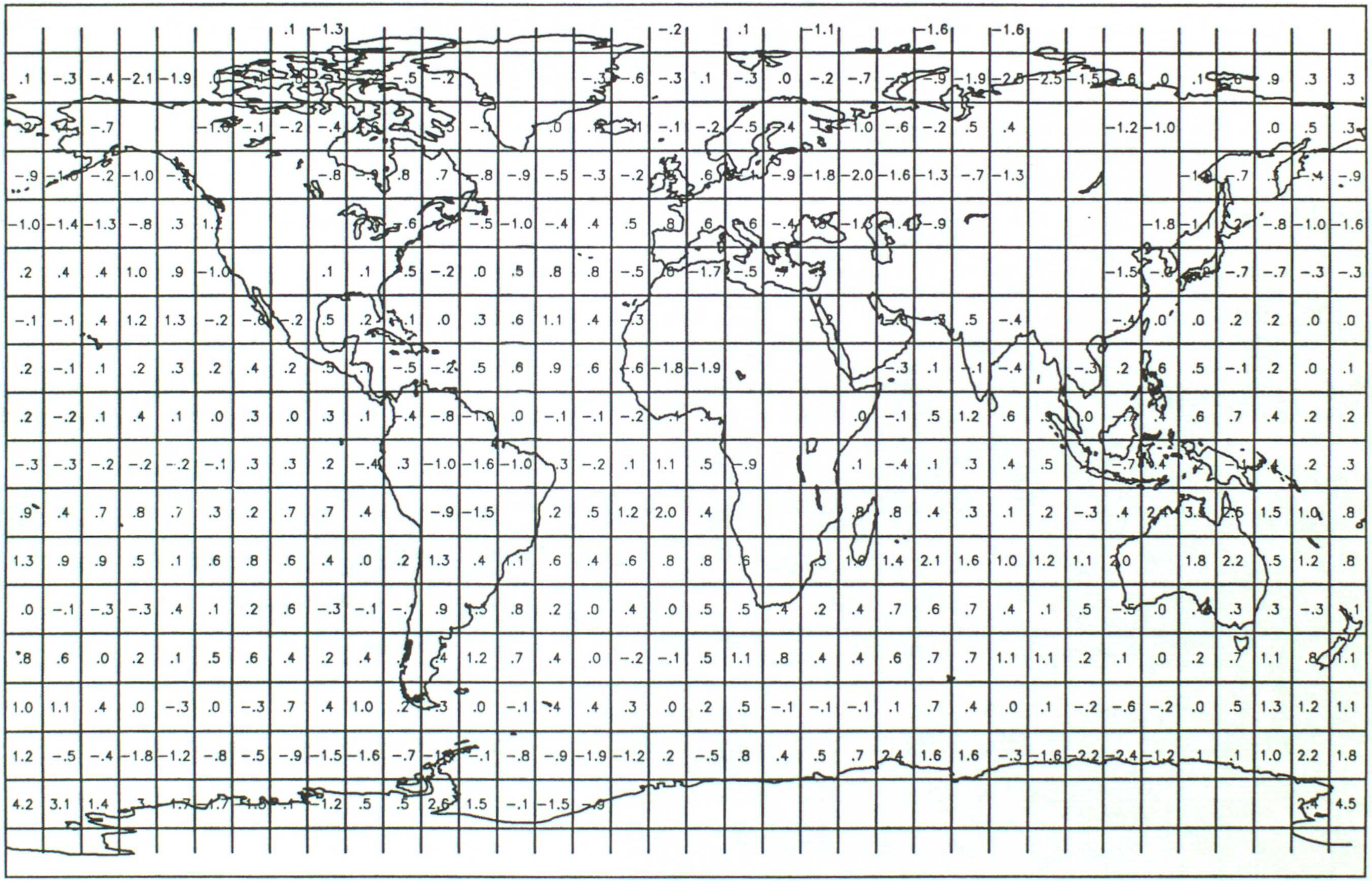

.5 .0 .2 −.2 .2 .2 .2 .3 .1 .7 .9 .8 .6 .3 .4 .3 .5
.5 .5 .6 .4 .6 .3 .4 .8 .7 1.3 .8 .6 .6 .7 .7 .6 .5 .5 .2 .3 .3 .5 .2 .3 .3 .0 .0 .3 .1 .4 .5
.6 .7 .8 .5 .2 .6 .6 .6 .7 .3 .7 .4 .4 .2 .3 .3 .1 .1 .3 −.1 −.1 .0 .2 .2 .4 .4 .0 .0 .2 .1 .2 .6 .8
.2 .6 .7 .2 .1 .2 .3 .3 .6 .9 .8 .3 .0 .0 −.1 −.3 .0 .3 .4 .0 −.4 −.6 −.4 −.5 −.8 −.7 −.3 −.3 .1 .4 .4 .3 .2 .3 .1
.5 .6 .5 .3 .1 .2 .4 .5 .3 .2 .4 .3 .2 .1 .2 .3 .3 .0 −.5 −1.3 −1.6 −1.0 −1.4 −1.7 −1.4 −.7 −.5 −.3 .1 .3 .4 .5 .4 .3
.5 .4 .1 .0 .0 .0 .5 .7 .4 .5 .4 .4 .4 −.2 −.2 −.4 −.3 −.1 −.4 −1.0 −1.1 −1.2 −1.1 −1.2 −1.3 −1.6 −.9 −.8 −.3 .0 .1 .3 .3 .3 .4
.2 .0 −.1 −.1 .2 .6 .6 .7 .4 .2 .4 .4 .3 −.1 .0 −.1 .0 −.2 −.6 −.8 −.9 −.5 −.6 −.6 −.6 −.5 −.3 .1 .5 .0 .1 .2 .3 .5 .5 .3
.5 .5 .6 .6 .5 .5 .5 .4 .6 .7 .6 .7 .5 .5 .7 .5 .5 .5 .3 .4 .2 .0 .2 .0 −.3 −.2 −.1 .3 .4 .3 .2 .2 .3 .6 .6 .5
.4 .4 .4 .4 .2 .3 .3 .5 .5 .5 .8 .7 .5 .0 −.1 −.2 −.1 −.3 .1 .5 .4 .5 .4 .0 .0 .1 −.2 .2 .2 .2 .1 .2 .2 .4 .3
.3 .3 .4 .2 .1 .1 .1 .2 .5 .8 .9 .7 .6 .5 .0 −.2 −.2 −.3 −.2 .5 .5 .6 .1 .3 .3 .0 −.1 −.1 .2 .2 .3 .0 .4 .4 .4
.4 .3 .2 .2 .2 .1 .2 .3 .3 .5 .8 .9 .6 .6 .0 .0 −.1 .0 −.2 −.1 .1 .3 .0 .0 .2 .2 .4 .3 .3 .1 .6 .4 .2 .5 .6
.3 .1 .1 .1 .1 .0 .2 .2 −.2 −.4 −.3 −.2 −.1 .2 .1 .2 −.1 −.1 −.2 −.8 −1.1 −1.1 −1.0 −1.1 −.8 −.6 −.4 −.3 −.1 .1 .4 .0 .1 −.5 −.4 −.1
−.4 −1.0 −1.2 −.9 −.7 −.3 −.3 −.8 −1.6 −1.3 −.7 −.7 −.2 −.4 −.6 −.5 −.8 −.1 −.1 −.5 −.8 −.9 −.8 −.8 −.8 −.7 −.7 −.6 −.6 −.2 −.4 −.4 −.3 −.2 −.6 .4
−.8 −1.2 −1.1 −1.4 −1.2 −1.0 −1.1 −.8 −1.2 −1.4 −1.0 −.7 −.7 −1.1 −1.1 −.7 −.1 −.4 −.4 −.7 −.8 −.4 −.5 −.4 −.5 −.3 −.5 −.7 −.9 −.9 −1.0 −.8 −.3 −.3 −.2 −.5
−1.2 −.3 −.5 −.8 −1.1 −.8 −.8 −.9 −1.2 −1.3 −1.3 −1.0 −1.0 −1.0 −.9 −1.1 .1 −.4 −.5 −.6 −.7 −.3 −.1 −.9 −.8 −.6 −.6 −.5 −1.0 −.6 −.7 −.6 −.5 −.6 −.7 −.8
−.5 −.2 −.3 −.6 −.3 −.5 −.3 −1.4 −1.2 −1.5 −1.3 −1.3 −1.3 −1.0 −.8 −.7 −.6 −.2 −.3 −.9 −.5 −.2 .2 −.1 .2 −.2 −.1 −.1 −.5 −.5 .2 −.2 −.6 −.5 −1.0 −.5
.1 .3 .1 .3 .4 .8 .6 .4 .4 .4 .7 .3 .6 .3 .2 .0 .3 .2 .5 .1 −.1 .2 .2 .2 .2 .2 .2 .2 .0 −.1 .3 .7 .3 −.2 .0 −.1
−.1 .7

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JULY 1996 FIGURE 27
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



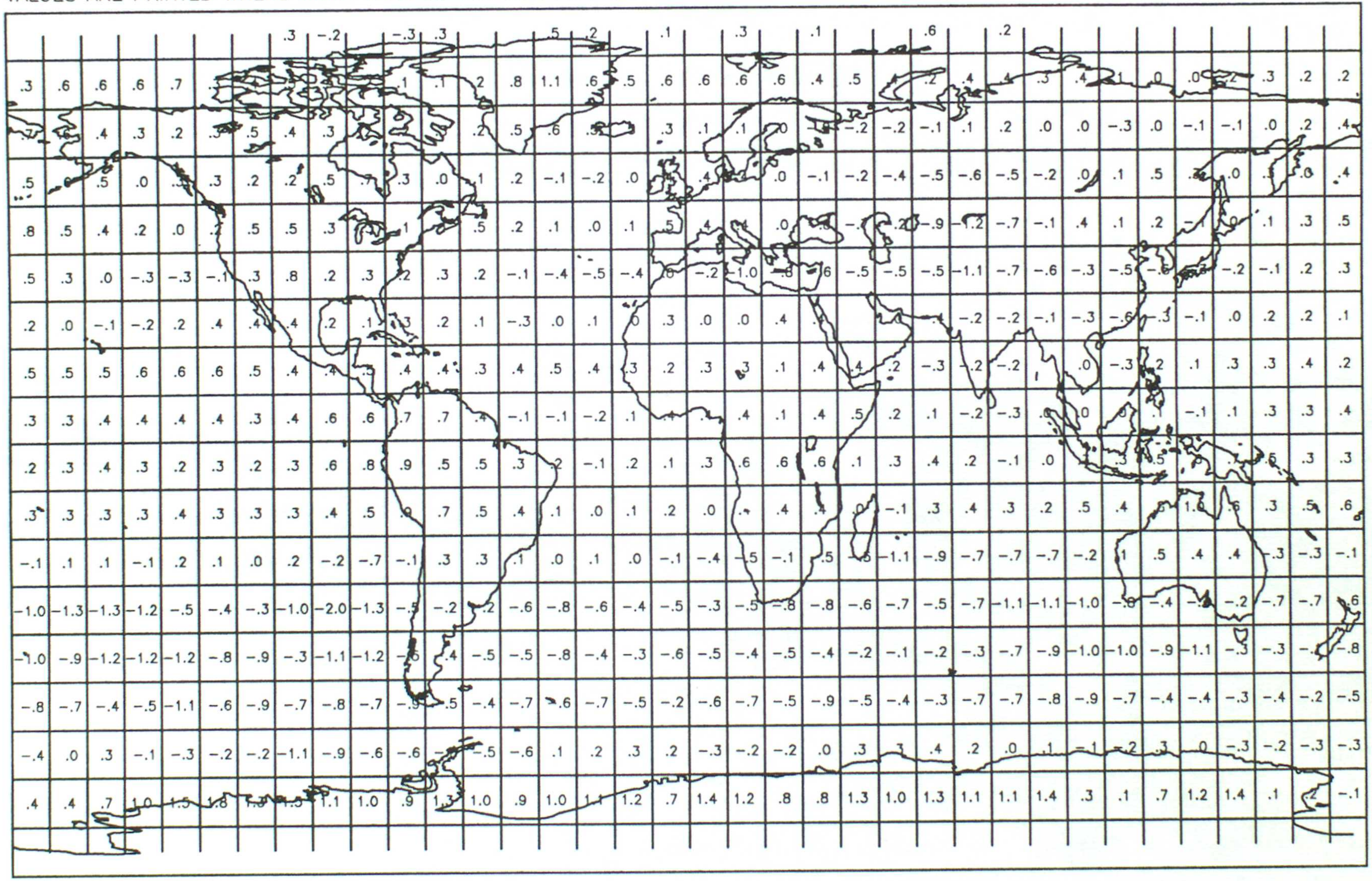
4.8		4.9		4.5	4.2	4.0	3.5	3.6	3.5		3.0	3.1	3.2	3.0	3.6	3.0	3.4	3.6																4.8	
4.1	3.9	3.9	4.2	4.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.3	3.1	2.8	2.8	2.6	2.7	2.8	2.9	3.2	3.3	3.8	4.2	3.9	4.0	4.0	4.3	4.3	4.3	4.2	2.8	3.4	3.3	3.3	3.7	4.0	4.1
2.7	2.4	2.4	2.4	2.7	3.2	3.4	3.1	2.9	[illegible]	[illegible]	3.1	2.7	2.9	2.7	2.7	2.8	2.3	2.0	2.3	2.8	3.5	3.2	3.5	3.7	4.0	3.9	3.6	3.3	3.1	2.7	2.4	2.3	2.7	3.1	3.2
3.0	2.8	3.0	2.8	[illegible]	2.3	2.5	2.8	2.8	[illegible]	2.4	2.7	3.0	3.1	3.0	2.5	1.8	[illegible]	1.9	[illegible]	2.6	2.9	3.0	3.3	3.7	3.8	3.2	3.1	2.8	2.6	2.5	2.6	2.8	3.0	3.2	3.3
3.0	2.9	2.7	2.2	1.8	1.8	1.8	2.0	2.7	[illegible]	2.8	[illegible]	2.2	2.2	2.2	2.2	1.9	2.0	2.4	[illegible]	2.7	[illegible]	3.5	3.5	3.4	3.3	2.8	2.7	3.0	3.1	3.1	2.8	[illegible]	3.2	2.9	2.9
2.1	2.1	2.0	1.9	1.7	1.5	1.7	2.0	2.1	2.1	2.3	2.3	2.6	2.4	2.2	2.3	2.1	[illegible]	3.2	2.9	[illegible]	[illegible]	3.7	3.6	3.4	3.1	2.6	2.5	2.8	2.9	2.5	[illegible]	3.0	2.6	2.3	1.8
2.1	2.5	2.3	2.0	1.6	1.5	1.8	1.9	.9	1.9	2.8	3.0	2.9	2.8	2.4	2.3	2.7	3.5	3.5	3.3	3.7	3.4	3.4	[illegible]	[illegible]	2.2	2.0	1.9	1.9	2.0	2.0	1.8	2.3	2.2	2.3	2.0
1.5	1.8	1.6	1.4	1.2	1.4	1.7	1.5	1.9	[illegible]	2.0	2.2	2.4	2.1	1.8	1.7	1.8	1.7	2.3	2.2	2.4	2.1	.9	1.9	1.9	2.2	1.8	1.2	1.5	1.2	1.6	1.7	1.5	1.1	1.7	1.4
1.6	1.9	1.9	1.8	2.0	2.1	2.5	2.3	2.3	2.5	2.7	2.4	2.3	2.0	2.1	2.3	2.5	2.5	2.3	2.8	2.2	2.4	2.6	2.6	2.9	3.4	3.5	3.5	2.8	2.2	2.0	1.6	2.0	1.7	1.0	1.1
1.7	1.6	1.5	1.9	1.9	2.3	2.4	2.4	2.7	3.0	2.9	2.6	2.7	2.7	2.4	2.4	3.2	3.3	3.3	3.7	3.2	3.1	2.5	2.7	2.4	2.6	2.9	3.0	[illegible]	2.7	[illegible]	[illegible]	[illegible]	[illegible]	.8	1.0
.6	.9	1.3	1.3	1.4	1.5	1.7	1.9	2.1	1.8	2.2	2.6	3.0	2.9	1.8	1.8	2.1	2.3	1.7	3.2	3.2	2.3	1.6	1.5	1.4	1.4	1.4	1.5	1.3	.8	[illegible]	[illegible]	1.1	.7	.9	.5
1.8	2.1	2.3	2.9	2.7	2.4	2.9	2.8	3.1	2.8	2.1	2.3	2.4	1.9	1.4	2.1	2.2	2.4	1.9	1.9	2.9	3.0	2.2	1.8	1.7	1.5	1.6	1.5	1.1	1.6	1.6	1.7	1.8	1.1	1.4	1.3
3.0	3.6	3.9	4.1	4.2	4.1	4.7	4.7	5.3	5.1	4.6	3.8	3.8	3.3	3.6	3.4	3.7	3.5	2.9	2.8	3.1	3.5	3.3	3.2	3.2	3.2	3.2	3.1	3.0	2.9	2.8	[illegible]	3.0	2.5	2.5	2.8
2.7	3.7	3.5	3.7	3.6	4.1	3.8	4.4	4.1	4.3	[illegible]	4.9	4.8	5.0	5.7	4.9	5.4	4.9	4.5	4.6	4.3	4.3	4.6	4.4	4.3	3.9	3.5	3.0	2.9	3.2	3.2	3.2	3.1	3.1	3.1	2.9
1.8	1.4	1.7	2.0	1.7	2.0	2.8	2.4	2.6	2.8	3.2	3.1	2.5	2.8	2.8	3.2	4.2	3.8	5.1	4.4	3.9	4.7	4.2	4.2	3.9	3.9	3.3	2.7	2.7	2.4	2.0	2.0	2.5	2.2	2.3	2.0
−.1	−.3	.1	.6	−.3	.1	.2	.2	.0	.1	.9	[illegible]	.9	.9	.9	.5	1.1	1.1	1.4	2.4	2.1	2.1	2.2	2.8	2.5	2.1	2.1	2.3	2.2	1.5	1.2	.9	1.0	.5	.6	.5
−.9	−.8	−.1	−.1	.4	.1	.1	.3	−.4	−.6	−.4	[illegible]	−1.0	−1.2	−1.2	−.5	−.6	−.2	−.5	.1	−.1	.1	.4	.3	.6	.1	.0	.6	.0	.7	.7	−.1	−.2	.1	−1.0	−1.6
																																	−.2		−2.9

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
JULY 1996
FIGURE 28
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


.1 −1.3 −.2 .1 −1.1 −1.6 −1.6
.1 −.3 −.4 −2.1 −1.9 −.5 −.2 −.3 −.6 −.3 .1 −.3 .0 −.2 −.7 −.9 −1.9 −2.8 −2.5 −1.5 .6 .0 .1 .9 .3 .3
−.7 −1.6 −.1 −.2 −.4 .0 −.1 −.1 −.2 −.5 .4 −1.0 −.6 −.2 .5 .4 −1.2 −1.0 .0 .5 .3
−.9 −1.0 −.2 −1.0 −.8 .8 .7 −.8 −.9 −.5 −.3 −.2 .6 −.9 −1.8 −2.0 −1.6 −1.3 −.7 −1.3 −.7 −.4 −.9
−1.0 −1.4 −1.3 −.8 .3 1.2 .6 −.5 −1.0 −.4 .4 .5 .8 .6 .6 −.4 −1.0 −.9 −1.8 −.8 −1.0 −1.6
.2 .4 .4 1.0 .9 −1.0 .1 .1 .5 −.2 .0 .5 .8 .8 −.5 −1.7 −.5 −1.5 −.7 −.7 −.3 −.3
−.1 −.1 .4 1.2 1.3 −.2 −.2 .5 .2 .1 .0 .3 .6 1.1 .4 −.3 .5 −.4 −.4 .0 .0 .2 .2 .0 .0
.2 −.1 .1 .2 .3 .2 .4 .2 −.5 −.2 .5 .6 .9 .6 −.6 −1.8 −1.9 −.3 .1 −.1 −.4 −.3 .2 .6 .5 −.1 .2 .0 .1
.2 −.2 .1 .4 .1 .0 .3 .0 .3 .1 −.4 −.8 −1.0 .0 −.1 −.1 −.2 .0 −.1 .5 1.2 .6 .0 .6 .7 .4 .2 .2
−.3 −.3 −.2 −.2 −.2 −.1 .3 .3 .2 −.4 .3 −1.0 −1.6 −1.0 .3 −.2 .1 1.1 .5 −.9 .1 −.4 .1 .3 .4 .5 −.7 .2 .3
.9 .4 .7 .8 .7 .3 .2 .7 .7 .4 −.9 −1.5 .2 .5 1.2 2.0 .4 .8 .8 .4 .3 .1 .2 −.3 .4 2.4 3.5 2.5 1.5 1.0 .8
1.3 .9 .9 .5 .1 .6 .8 .6 .4 .0 .2 1.3 .4 1.1 .6 .4 .6 .8 .8 .6 1.0 1.4 2.1 1.6 1.0 1.2 1.1 2.0 1.8 2.2 1.5 1.2 .8
.0 −.1 −.3 −.3 .4 .1 .2 .6 −.3 −.1 .9 .8 .2 .0 .4 .0 .5 .5 .2 .4 .7 .6 .7 .4 .1 .5 .0 .3 .3 −.3 .1
.8 .6 .0 .2 .1 .5 .6 .4 .2 .4 .4 1.2 .7 .4 .0 −.2 −.1 .5 1.1 .8 .4 .4 .6 .7 .7 1.1 1.1 .2 .1 .0 .2 .7 1.1 .8 1.1
1.0 1.1 .4 .0 −.3 .0 −.3 .7 .4 1.0 .2 .3 .0 −.1 .4 .4 .3 .0 .2 .5 −.1 −.1 −.1 .1 .7 .4 .0 .1 −.2 −.6 −.2 .0 .5 1.3 1.2 1.1
1.2 −.5 −.4 −1.8 −1.2 −.8 −.5 −.9 −1.5 −1.6 −.7 −.1 −.8 −.9 −1.9 −1.2 .2 −.5 .8 .4 .5 .7 2.4 1.6 1.6 −.3 −1.6 −2.2 −2.4 −1.2 .1 .1 1.0 2.2 1.8
4.2 3.1 1.4 .3 1.7 1.7 1.8 .1 1.2 .5 .5 2.6 1.5 −.1 −1.5 −.9 2.4 4.5

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
JULY 1996
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29


.3 –.2 –.3 .3 .5 .2 .1 .3 .1 .6 .2
.3 .6 .6 .6 .7 .1 .1 .2 .8 1.1 .6 .5 .6 .6 .6 .6 .4 .5 .4 .2 .4 .4 .3 .4 .1 .0 .0 .2 .3 .2 .2
.7 .6 .4 .3 .2 .3 .5 .4 .3 .3 .2 .5 .6 .5 .3 .1 .1 .0 –.2 –.2 –.1 .1 .2 .0 .0 –.3 .0 –.1 –.1 .0 .2 .4
.5 .5 .0 .3 .3 .2 .2 .5 .7 .3 .0 .1 .2 –.1 –.2 .0 .4 .0 –.1 –.2 –.4 –.5 –.6 –.5 –.2 .0 .1 .5 .0 .0 .4
.8 .5 .4 .2 .0 .2 .5 .5 .3 .1 .5 .2 .1 .0 .1 .5 .4 .4 .0 .2 –.9 –1.2 –.7 –.1 .4 .1 .2 –.1 .0 .1 .3 .5
.5 .3 .0 –.3 –.3 –.1 .3 .8 .2 .3 .2 .3 .2 –.1 –.4 –.5 –.4 .0 –.2 –1.0 –.8 –.6 –.5 –.5 –.5 –1.1 –.7 –.6 –.3 –.5 –.6 –.3 –.2 –.1 .2 .3
.2 .0 –.1 –.2 .2 .4 .4 .4 .2 .1 .3 .2 .1 –.3 .0 .1 .0 .3 .0 .0 .4 –.2 –.2 –.1 –.3 –.6 –.3 –.1 .0 .2 .2 .1
.5 .5 .5 .6 .6 .6 .5 .4 .4 .5 .4 .4 .3 .4 .5 .4 .3 .2 .3 .3 .1 .4 .4 .2 –.3 –.2 –.2 .0 –.3 .2 .1 .3 .3 .4 .2
.3 .3 .4 .4 .4 .4 .3 .4 .6 .6 .7 .7 .4 –.1 –.1 –.2 .1 .4 .4 .1 .4 .5 .2 .1 –.2 –.3 .0 .0 .0 .1 –.1 .1 .3 .3 .4
.2 .3 .4 .3 .2 .3 .2 .3 .6 .8 .9 .5 .5 .3 .2 –.1 .2 .1 .3 .6 .6 .6 .1 .3 .4 .2 –.1 .0 .3 .5 .5 .3 .3
.3 .3 .3 .3 .4 .3 .3 .3 .4 .5 .9 .7 .5 .4 .1 .0 .1 .2 .0 .4 .4 .0 –.1 .3 .4 .3 .2 .5 .4 .6 1.0 .6 .3 .5 .6
–.1 .1 .1 –.1 .2 .1 .0 .2 –.2 –.7 –.1 .3 .3 .1 .0 .1 .0 –.1 –.4 –.5 –.1 .5 –.5 –1.1 –.9 –.7 –.7 –.7 –.2 .1 .5 .4 .4 –.3 –.3 –.1
–1.0 –1.3 –1.3 –1.2 –.5 –.4 –.3 –1.0 –2.0 –1.3 –.5 –.2 .2 –.6 –.8 –.6 –.4 –.5 –.3 –.5 –.8 –.8 –.6 –.7 –.5 –.7 –1.1 –1.1 –1.0 –.8 –.4 –.2 –.7 –.7 .6
–1.0 –.9 –1.2 –1.2 –1.2 –.8 –.9 –.3 –1.1 –1.2 –.6 .4 –.5 –.5 –.8 –.4 –.3 –.6 –.5 –.4 –.5 –.4 –.2 –.1 –.2 –.3 –.7 –.9 –1.0 –1.0 –.9 –1.1 –.3 –.3 –.8
–.8 –.7 –.4 –.5 –1.1 –.6 –.9 –.7 –.8 –.7 –.9 .5 –.4 –.7 .6 –.7 –.5 –.2 –.6 –.7 –.5 –.9 –.5 –.4 –.3 –.7 –.7 –.8 –.9 –.7 –.4 –.4 –.3 –.4 –.2 –.5
–.4 .0 .3 –.1 –.3 –.2 –.2 –1.1 –.9 –.6 –.6 –.5 –.6 .1 .2 .3 .2 –.3 –.2 –.2 .0 .3 .3 .4 .2 .0 .1 –.1 –.2 .3 .0 –.3 –.2 –.3 –.3
.4 .4 .7 1.0 1.5 1.8 1.5 1.1 1.0 .9 1.3 1.0 .9 1.0 1.1 1.2 .7 1.4 1.2 .8 .8 1.3 1.0 1.3 1.1 1.1 1.4 .3 .1 .7 1.2 1.4 .1 .2 –.1

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
JULY 1996
FIGURE 30
NOAA-14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

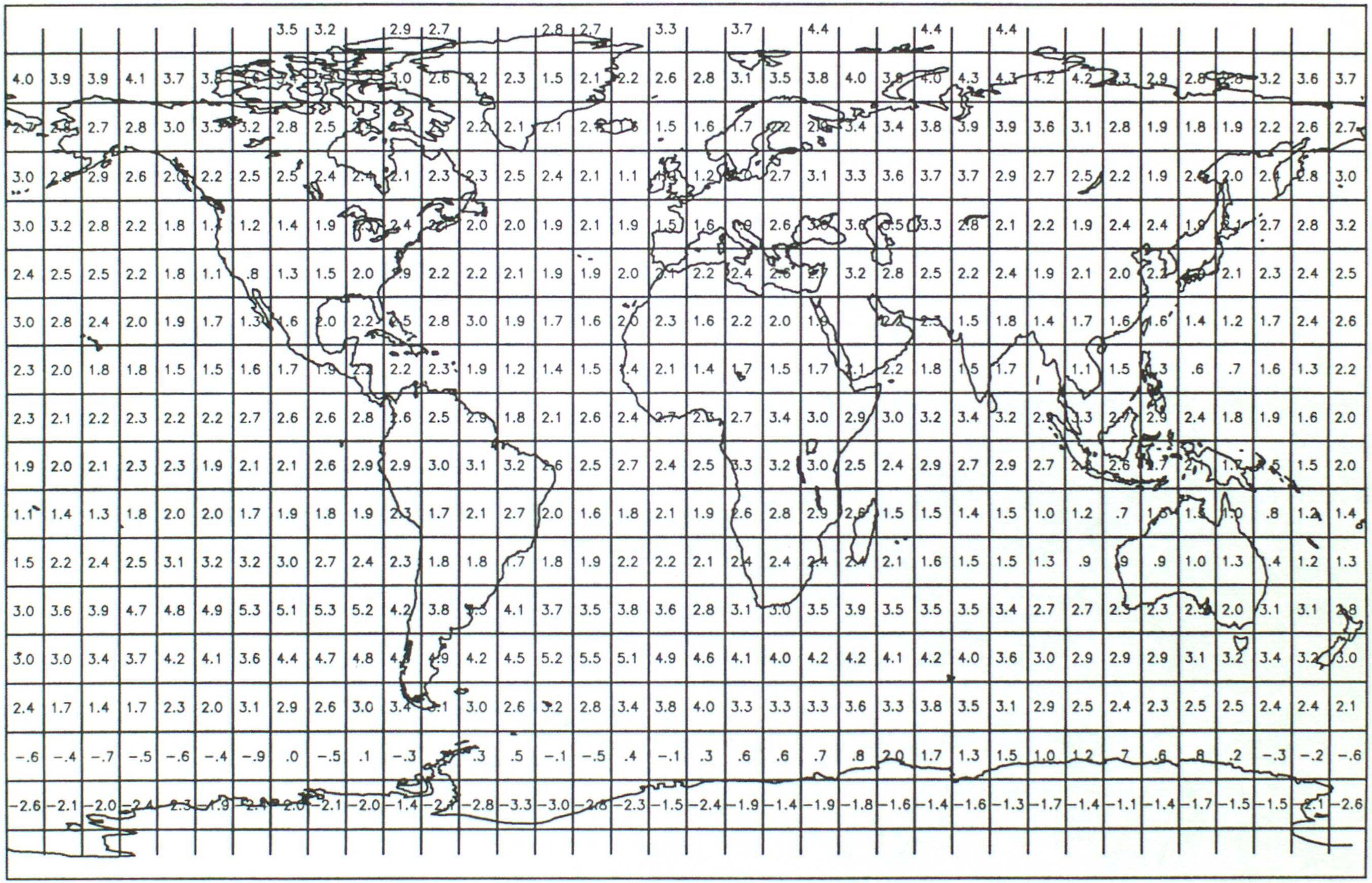

3.5 3.2 2.9 2.7 2.8 2.7 3.3 3.7 4.4 4.4 4.4
4.0 3.9 3.9 4.1 3.7 3.0 2.6 2.2 2.3 1.5 2.1 2.2 2.6 2.8 3.1 3.5 3.8 4.0 3.8 4.0 4.3 4.3 4.2 4.2 3.3 2.9 2.8 2.8 3.2 3.6 3.7
2.7 2.8 2.7 2.8 3.0 3.3 3.2 2.8 2.5 2.2 2.1 2.1 1.5 1.6 1.7 2.2 2.9 3.4 3.4 3.8 3.9 3.9 3.6 3.1 2.8 1.9 1.8 1.9 2.2 2.6 2.7
3.0 2.8 2.9 2.6 2.0 2.2 2.5 2.5 2.4 2.4 2.1 2.3 2.3 2.5 2.4 2.1 1.1 1.2 2.7 3.1 3.3 3.6 3.7 3.7 2.9 2.7 2.5 2.2 1.9 2.4 2.0 2.4 2.8 3.0
3.0 3.2 2.8 2.2 1.8 1.2 1.4 1.9 2.4 2.0 2.0 1.9 2.1 1.9 1.5 1.6 2.6 3.6 3.5 3.3 2.8 2.1 2.2 1.9 2.4 2.4 2.7 2.8 3.2
2.4 2.5 2.5 2.2 1.8 1.1 .8 1.3 1.5 2.0 1.9 2.2 2.2 2.1 1.9 1.9 2.0 2.1 2.2 2.4 2.6 2.7 3.2 2.8 2.5 2.2 2.4 1.9 2.1 2.0 2.2 2.1 2.3 2.4 2.5
3.0 2.8 2.4 2.0 1.9 1.7 1.3 1.6 2.0 2.2 2.5 2.8 3.0 1.9 1.7 1.6 2.0 2.3 1.6 2.2 2.0 1.9 2.2 2.3 1.5 1.8 1.4 1.7 1.6 1.6 1.4 1.2 1.7 2.4 2.6
2.3 2.0 1.8 1.8 1.5 1.5 1.6 1.7 1.9 2.2 2.2 2.3 1.9 1.2 1.4 1.5 1.4 2.1 1.4 1.7 1.5 1.7 2.1 2.2 1.8 1.5 1.7 1.1 1.5 1.3 .6 .7 1.6 1.3 2.2
2.3 2.1 2.2 2.3 2.2 2.2 2.7 2.6 2.6 2.8 2.6 2.5 2.9 1.8 2.1 2.6 2.4 2.7 2.3 2.7 3.4 3.0 2.9 3.0 3.2 3.4 3.2 2.9 3.3 2.7 2.9 2.4 1.8 1.9 1.6 2.0
1.9 2.0 2.1 2.3 2.3 1.9 2.1 2.1 2.6 2.9 2.9 3.0 3.1 3.2 2.6 2.5 2.7 2.4 2.5 3.3 3.2 3.0 2.5 2.4 2.9 2.7 2.9 2.7 2.8 2.6 1.7 2.1 1.7 1.5 1.5 2.0
1.1 1.4 1.3 1.8 2.0 2.0 1.7 1.9 1.8 1.9 2.3 1.7 2.1 2.7 2.0 1.6 1.8 2.1 1.9 2.6 2.8 2.9 2.6 1.5 1.5 1.4 1.5 1.0 1.2 .7 1.6 1.5 1.0 .8 1.2 1.4
1.5 2.2 2.4 2.5 3.1 3.2 3.2 3.0 2.7 2.4 2.3 1.8 1.8 1.7 1.8 1.9 2.2 2.2 2.1 2.4 2.4 2.4 2.4 2.1 1.6 1.5 1.5 1.3 .9 .9 .9 1.0 1.3 1.4 1.2 1.3
3.0 3.6 3.9 4.7 4.8 4.9 5.3 5.1 5.3 5.2 4.2 3.8 3.5 4.1 3.7 3.5 3.8 3.6 2.8 3.1 3.0 3.5 3.9 3.5 3.5 3.5 3.4 2.7 2.7 2.3 2.3 2.3 2.0 3.1 3.1 2.8
3.0 3.0 3.4 3.7 4.2 4.1 3.6 4.4 4.7 4.8 4.8 4.9 4.2 4.5 5.2 5.5 5.1 4.9 4.6 4.1 4.0 4.2 4.2 4.1 4.2 4.0 3.6 3.0 2.9 2.9 2.9 3.1 3.2 3.4 3.2 3.0
2.4 1.7 1.4 1.7 2.3 2.0 3.1 2.9 2.6 3.0 3.4 3.1 3.0 2.6 3.2 2.8 3.4 3.8 4.0 3.3 3.3 3.3 3.6 3.3 3.8 3.5 3.1 2.9 2.5 2.4 2.3 2.5 2.5 2.4 2.4 2.1
-.6 -.4 -.7 -.5 -.6 -.4 -.9 .0 -.5 .1 -.3 .3 .5 -.1 -.5 .4 -.1 .3 .6 .6 .7 .8 2.0 1.7 1.3 1.5 1.0 1.2 .7 .6 .8 .2 -.3 -.2 -.6
-2.6 -2.1 -2.0 -2.4 -2.3 -1.9 -2.4 -2.0 -2.1 -2.0 -1.4 -2.1 -2.8 -3.3 -3.0 -2.8 -2.3 -1.5 -2.4 -1.9 -1.4 -1.9 -1.8 -1.6 -1.4 -1.6 -1.3 -1.7 -1.4 -1.1 -1.4 -1.7 -1.5 -1.5 -2.1 -2.6

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed ($m\ s^{-1}$)
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 $m\ s^{-1}$ (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
13903	20.0	-30.4	ALL	MSLP	SUR	82	0	0	0.7	0.6	0.9
13905	20.5	-35.1	ALL	MSLP	SUR	99	0	0	0.7	0.1	0.7
13906	10.5	-35.8	ALL	MSLP	SUR	74	0	0	0.9	0.0	0.9
13910	15.1	-35.5	ALL	MSLP	SUR	106	0	0	0.9	-0.1	0.9
13911	14.7	-41.1	ALL	MSLP	SUR	97	0	0	1.0	0.0	1.0
13912	15.4	-45.4	ALL	MSLP	SUR	109	0	0	0.9	0.3	1.0
13913	15.2	-30.7	ALL	MSLP	SUR	123	0	0	0.7	0.1	0.7
13915	10.4	-30.8	ALL	MSLP	SUR	87	0	0	0.7	-0.2	0.7
20602	44.6	-8.8	ALL	MSLP	SUR	1	0	0	0.0	-0.9	0.9
25565	56.0	-25.0	ALL	MSLP	SUR	447	0	0	1.2	0.2	1.2
29607	46.3	-30.7	ALL	MSLP	SUR	2	0	0	0.8	0.3	0.9
33835	44.7	-63.6	ALL	MSLP	SUR	3	3	100	0.0	0.0	0.0
41526	35.4	-54.6	ALL	MSLP	SUR	208	0	0	0.9	-0.4	1.0
41585	35.4	-43.5	ALL	MSLP	SUR	191	0	0	0.8	-0.2	0.8
41922	20.4	-41.3	ALL	MSLP	SUR	82	0	0	0.9	0.6	1.1
41924	10.1	-41.8	ALL	MSLP	SUR	89	0	0	1.0	0.0	1.0
44613	41.9	-13.6	ALL	MSLP	SUR	1108	5	0	0.7	-0.1	0.7
44614	59.3	-31.7	ALL	MSLP	SUR	1176	7	1	1.3	0.1	1.3
44616	59.2	-20.4	ALL	MSLP	SUR	1620	3	0	1.2	0.9	1.5
44727	39.3	-16.4	ALL	MSLP	SUR	856	1	0	0.7	-0.2	0.8
44728	57.4	-25.1	ALL	MSLP	SUR	1059	112	11	1.1	0.4	1.2
44760	22.5	-43.9	ALL	MSLP	SUR	264	0	0	0.9	-0.3	1.0
44763	57.1	-31.7	ALL	MSLP	SUR	1649	3	0	1.0	0.2	1.0
44765	57.8	-27.3	ALL	MSLP	SUR	1513	3	0	1.1	-0.1	1.1
44767	56.6	-32.9	ALL	MSLP	SUR	1551	1	0	1.1	0.2	1.2
44768	61.4	-34.4	ALL	MSLP	SUR	1748	0	0	1.2	0.2	1.2
44769	57.8	-20.5	ALL	MSLP	SUR	1710	2	0	1.1	0.2	1.1
44770	25.0	-53.4	ALL	MSLP	SUR	445	2	0	0.9	0.1	0.9
44771	52.8	-31.4	ALL	MSLP	SUR	1415	4	0	1.3	0.3	1.3
44772	55.1	-29.3	ALL	MSLP	SUR	1557	1	0	1.1	0.0	1.1
44773	53.6	-14.6	ALL	MSLP	SUR	1135	4	0	1.1	0.5	1.2
44774	51.1	-26.0	ALL	MSLP	SUR	1441	4	0	1.1	0.2	1.1
44775	52.3	-46.5	ALL	MSLP	SUR	568	4	1	1.6	-0.5	1.6
44777	55.3	-42.3	ALL	MSLP	SUR	776	5	1	1.6	0.1	1.6
44778	54.7	-40.3	ALL	MSLP	SUR	707	1	0	1.8	-0.1	1.8
44911	55.2	-50.1	ALL	MSLP	SUR	108	0	0	1.1	0.4	1.2
61525	35.7	-4.4	ALL	MSLP	SUR	256	0	0	1.0	1.1	1.5
62501	49.6	-19.3	ALL	MSLP	SUR	499	0	0	1.1	0.2	1.1
62503	43.1	-14.8	ALL	MSLP	SUR	485	0	0	0.8	0.1	0.8
62504	44.9	-9.2	ALL	MSLP	SUR	484	0	0	1.0	0.2	1.0
62505	48.4	-19.8	ALL	MSLP	SUR	514	1	0	1.1	0.3	1.2
62506	49.4	-19.4	ALL	MSLP	SUR	408	0	0	1.0	0.7	1.2
62507	40.9	-21.5	ALL	MSLP	SUR	183	0	0	0.9	0.5	1.1
62508	48.8	-26.5	ALL	MSLP	SUR	546	0	0	1.0	0.5	1.1
62510	42.8	-14.9	ALL	MSLP	SUR	505	0	0	0.8	0.4	0.9
62910	60.3	-32.7	ALL	MSLP	SUR	129	0	0	1.0	0.5	1.1
63661	44.7	-63.6	ALL	MSLP	SUR	11	2	18	1.2	7.1	7.2
64529	59.8	-25.8	ALL	MSLP	SUR	15	0	0	1.0	2.8	3.0
65594	58.6	-43.2	ALL	MSLP	SUR	1677	4	0	2.0	-0.5	2.0
65595	56.5	-41.9	ALL	MSLP	SUR	1328	1	0	1.7	-0.5	1.8
65598	60.4	-35.9	ALL	MSLP	SUR	1543	0	0	1.2	-0.3	1.2
71544	44.7	-63.6	ALL	MSLP	SUR	15	0	0	1.2	-3.4	3.6
71545	44.7	-63.6	ALL	MSLP	SUR	11	0	0	1.3	-3.1	3.4
71546	44.7	-63.6	ALL	MSLP	SUR	14	0	0	1.3	-3.2	3.4
71557	44.7	-63.6	ALL	MSLP	SUR	12	12	100	0.0	0.0	0.0
WIND SPEED											
20602	44.6	-8.8	ALL	SPEED	SUR	1	0	0	0.0	0.6	0.6
29607	46.3	-30.7	ALL	SPEED	SUR	2	0	0	0.3	-0.2	0.3
41526	35.4	-54.6	ALL	SPEED	SUR	197	0	0	1.4	-1.9	2.4
44613	41.9	-13.6	ALL	SPEED	SUR	987	2	0	1.6	-1.7	2.3

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
44616	59.2	-20.4	ALL	SPEED	SUR	1	1	100	0.0	0.0	0.0
44765	57.8	-27.3	ALL	SPEED	SUR	1	0	0	0.0	21.6	21.6
44772	55.1	-29.3	ALL	SPEED	SUR	2	0	0	0.5	-6.1	6.2
65598	60.4	-35.9	ALL	SPEED	SUR	10	4	40	2.1	-7.4	7.7
WIND DIRECTION											
29607	46.3	-30.7	ALL	DIRN.	SUR	2	0	0	19.5	5.3	20.2
41526	35.4	-54.6	ALL	DIRN.	SUR	98	0	0	21.0	4.9	21.5
44613	41.9	-13.6	ALL	DIRN.	SUR	780	2	0	17.4	-1.1	17.5
44616	59.2	-20.4	ALL	DIRN.	SUR	1	1	100	0.0	0.0	0.0
44765	57.8	-27.3	ALL	DIRN.	SUR	1	0	0	0.0	34.9	34.9
44772	55.1	-29.3	ALL	DIRN.	SUR	2	0	0	10.1	136.3	136.7
65598	60.4	-35.9	ALL	DIRN.	SUR	10	4	40	85.3	3.5	85.3

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3317	0	1	1.8	-0.1	3337	0	2	0	7.9	1.4
AAN	124	3	4	1.6	-0.9	127	0	9	0	9.8	0.3
ACA	1682	0	2	2.2	0.6	1717	0	2	1	6.5	0.5
AEA	437	25	20	3.2	1.7	420	0	7	0	9.3	1.2
AEL	403	2	8	2.5	0.3	412	0	5	0	7.6	0.7
AFL	262	2	100	2.7	1.4	261	0	5	0	10.1	1.3
AFR	954	0	5	1.8	-0.1	982	0	5	0	7.3	0.8
AIC	26	0	8	2.6	1.2	26	0	12	0	14.7	1.9
AIH	140	0	4	1.5	0.1	151	0	7	0	9.6	1.0
AMT	81	0	23	2.0	0.9	95	0	25	2	10.2	2.2
AMX	134	0	3	1.2	0.2	140	0	4	0	8.2	-0.3
ANZ	238	0	3	2.3	-0.7	236	1	3	0	6.2	0.2
AOM	254	0	1	1.5	0.7	262	0	1	0	7.0	1.0
ATN	22	0	9	2.7	0.9	21	0	100	0	13.9	0.6
AUA	66	0	5	1.8	-0.7	64	0	3	0	7.9	2.2
AVA	112	1	1	1.5	-0.1	120	0	3	0	9.3	1.2
AZA	520	0	5	2.3	0.3	526	0	4	0	8.2	1.5
BAL	325	1	17	1.7	-0.7	343	0	17	0	7.7	0.6
BAW	1433	0	2	1.9	0.0	1445	0	2	0	7.6	1.0
BBB	45	0	0	1.6	-1.0	45	0	4	0	8.3	1.4
BWA	85	0	5	2.3	1.5	87	0	8	2	8.9	0.8
CDN	940	1	1	2.0	0.5	936	0	2	1	7.7	0.8
CFG	520	0	2	1.9	-1.2	532	0	2	0	7.2	0.3
CKT	124	2	6	1.5	0.3	125	0	6	0	7.7	0.8
CLI	275	0	3	2.3	0.0	277	0	2	0	7.8	0.5
CLX	133	0	2	1.8	-0.3	133	0	1	1	6.7	0.8
CMM	338	0	1	2.0	0.2	348	0	3	1	7.3	1.1
COA	631	0	2	1.7	0.5	638	0	3	0	8.2	0.8
CRL	226	0	1	1.8	0.6	232	0	2	0	7.8	1.0
CSA	46	0	0	1.3	-0.6	46	0	0	2	6.2	2.5
CTM	76	0	22	2.9	-0.1	78	0	17	0	7.0	1.2
CUB	177	2	85	2.3	1.4	180	1	32	0	10.0	2.2
DAF	20	0	0	2.0	0.6	20	0	5	5	6.1	0.2
DAL	2454	0	1	1.9	0.3	2477	0	2	0	8.2	0.8
DHL	407	4	100	4.1	-0.4	411	0	3	0	8.1	0.9
DLH	2475	0	7	2.2	0.5	2507	0	10	3	7.5	1.0
DOA	40	0	15	3.5	0.6	40	0	10	0	7.7	1.2
ELY	156	1	10	1.7	0.0	163	0	11	0	9.2	1.6
EWW	115	3	100	3.6	-0.5	122	0	100	0	17.5	5.5
FDX	509	0	2	1.7	0.6	512	0	2	0	7.9	0.3
FIN	542	0	3	2.1	0.6	542	0	6	3	7.7	0.8
GAF	173	0	1	2.4	0.6	175	0	6	2	9.0	0.7
GTI	64	0	2	1.8	-0.5	64	0	2	0	7.3	0.4
HLF	100	0	1	1.4	-0.9	102	0	0	0	7.8	0.7
HZM	38	5	11	2.5	1.1	39	0	5	0	10.1	-0.5
IBE	1063	1	22	1.9	0.4	1080	0	24	0	8.0	0.5
ICE	672	0	1	2.0	0.1	670	0	2	1	8.0	0.4
KAC	26	0	0	1.6	0.0	27	0	4	4	9.8	2.9
KJC	24	4	0	2.1	1.3	24	0	4	0	9.9	0.0
KLM	2002	0	2	2.0	0.3	2014	0	3	1	7.7	0.9
LAZ	31	0	6	3.7	2.1	31	0	6	0	9.2	3.7
LDA	121	0	5	1.6	-1.2	127	0	6	0	5.9	0.1
LDI	107	2	25	1.9	-1.6	109	0	26	0	7.6	-0.4
LIB	145	0	1	1.7	0.2	145	0	3	0	7.8	1.3
LKR	54	0	4	1.3	0.8	53	0	4	0	7.7	0.8
LOT	431	0	0	2.2	-0.6	431	0	0	0	7.6	0.9
LTU	468	1	5	1.6	0.1	466	0	5	0	7.0	0.8
MPH	553	0	2	1.9	-0.2	563	0	2	0	7.3	0.6
NWA	3093	0	2	2.2	0.9	3168	0	2	0	8.6	0.7

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
OAL	44	0	0	2.2	1.6	47	0	0	0	8.8	3.6
RAF	23	0	0	1.8	1.0	23	0	0	0	7.0	-0.9
RAM	20	10	5	2.0	-1.5	20	0	0	0	7.5	0.8
RCH	252	1	71	2.6	-0.1	261	0	75	0	15.0	3.6
RIA	144	1	12	2.8	1.7	149	0	23	1	14.8	2.5
RJA	87	0	2	2.1	0.8	87	0	2	0	7.6	0.6
RRR	215	0	19	2.6	-0.4	216	0	19	1	9.7	1.2
SAB	103	0	2	1.6	0.1	102	0	0	0	6.9	1.9
SAS	1326	1	3	2.3	0.1	1315	0	4	2	7.7	0.5
SIA	105	0	7	2.0	-1.0	106	0	7	1	8.3	0.5
SLR	92	2	25	2.7	-0.1	92	0	22	0	8.5	0.3
SPP	69	0	38	1.7	-0.2	69	0	35	0	9.0	0.8
SVA	164	1	3	1.9	0.2	173	0	4	0	8.9	1.2
SWR	153	1	2	1.8	0.3	156	0	3	0	8.5	1.6
TAP	488	1	9	1.4	0.0	485	0	9	0	7.3	0.9
TEJ	94	0	21	1.5	0.4	94	0	21	0	8.9	1.6
TOW	132	0	2	2.1	-0.7	135	0	7	0	9.2	0.9
TSC	300	1	82	2.1	0.3	305	0	7	0	9.4	1.7
TWA	1599	0	3	2.0	0.0	1597	0	3	0	8.4	1.4
TWE	24	0	8	2.0	-0.3	24	0	4	0	7.8	0.5
UAL	2056	0	2	2.2	-0.8	2090	0	1	0	7.6	1.0
UKR	23	0	43	3.1	0.6	23	0	57	0	20.1	-2.6
ULE	153	1	1	1.5	0.2	154	0	3	1	8.1	2.2
UPS	627	1	15	1.9	0.1	635	0	15	0	7.5	1.2
USA	255	1	4	1.6	-0.2	250	0	3	0	8.0	1.5
VIA	84	2	4	1.3	0.8	88	0	5	0	6.6	1.1
VIR	293	1	2	2.0	-0.1	294	0	2	0	7.2	1.9
WOA	266	0	8	2.0	0.8	267	0	10	0	8.1	0.5
BA	8464	0	10	1.3	0.4	8462	0	10	0	7.1	1.0
KL	3824	0	10	1.4	0.4	3824	0	10	0	7.1	1.2
LH	230	0	3	1.5	0.5	230	0	3	0	5.9	1.3
SV	287	0	4	0.9	0.4	287	0	4	0	6.7	1.1
N	239	1	5	2.7	0.5	254	0	7	0	11.2	1.8

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	26	0	16.4	17.4	5.7
DBBH	12	Z	100	22	0	17.5	18.1	4.8
DBBX	00	Z	100	1	0	0.0	15.0	15.0
DBLK	12	Z	100	5	0	11.9	26.9	-24.2
EHOA	00	Z	100	1	0	0.0	24.0	-24.0
EHOA	12	Z	100	15	0	9.7	17.4	-14.5
FNOR	00	Z	100	13	0	15.2	15.3	1.7
FNOR	12	Z	100	10	0	11.8	17.5	-12.9
FNOU	00	Z	100	15	0	13.4	15.1	-7.1
FNOU	12	Z	100	13	0	19.5	21.9	-9.9
FNPH	00	Z	100	11	0	9.8	10.1	-2.5
FNPH	12	Z	100	11	0	16.5	24.7	-18.4
FNRS	00	Z	100	10	0	10.5	10.5	-0.9
FNRS	12	Z	100	9	0	12.1	40.5	-38.7
JBOA	00	Z	100	1	0	0.0	7.0	-7.0
JCCX	00	Z	100	1	0	0.0	1.0	-1.0
JIVB	00	Z	100	1	0	0.0	19.0	-19.0
LDWR	00	Z	100	31	0	9.3	9.3	0.0
LDWR	12	Z	100	28	0	8.2	11.8	-8.5
OXVH2	00	Z	100	16	0	11.8	13.2	-5.8
OXVH2	12	Z	100	17	0	11.2	13.2	-7.1
OXYH2	00	Z	100	17	0	18.0	19.7	-7.9
OXYH2	12	Z	100	16	1	13.4	15.9	-8.6
RS	00	Z	100	1	0	0.0	17.0	-17.0
UQYC	00	Z	100	1	0	0.0	25.0	25.0
V2EZ	00	Z	100	12	0	16.0	27.0	-21.8
V2EZ	12	Z	100	8	0	10.8	20.7	-17.6
V2GH	00	Z	100	13	0	21.3	40.7	-34.7
V2GH	12	Z	100	12	0	21.9	46.6	-41.2
V2LV	00	Z	100	15	0	12.9	13.1	1.7
V2LV	12	Z	100	17	0	31.7	32.1	-5.4
WTEA	00	Z	100	1	0	0.0	34.0	-34.0
WTEU	00	Z	100	1	0	0.0	11.0	11.0
03953	00	Z	100	30	0	9.8	14.0	10.0
03953	12	Z	100	30	0	10.5	11.1	3.6
04018	00	Z	100	31	0	12.3	12.9	4.0
04018	12	Z	100	30	0	11.9	12.1	2.4
04220	00	Z	100	30	0	14.8	14.8	0.4
04220	12	Z	100	30	0	10.8	11.6	4.1
04270	00	Z	100	31	0	14.9	18.7	-11.3
04270	12	Z	100	30	0	11.6	16.5	-11.7
04339	00	Z	100	31	0	14.0	14.8	4.8
04339	12	Z	100	30	0	10.3	12.4	6.9
04360	00	Z	100	31	0	15.5	21.4	14.7
04360	12	Z	100	27	0	12.9	26.2	22.8
08001	00	Z	100	22	0	19.3	20.3	6.2
08001	12	Z	100	23	0	15.4	20.2	-13.0
08508	00	Z	100	29	0	10.4	10.4	-1.0
08508	12	Z	100	27	0	9.6	23.3	-21.3
08594	00	Z	100	1	0	0.0	24.0	24.0
08594	12	Z	100	11	0	15.2	19.8	-12.7
60020	00	Z	100	30	0	9.8	11.0	4.9
60020	12	Z	100	29	0	11.0	18.8	-15.3
71600	00	Z	100	26	0	12.2	13.3	-5.3
71600	12	Z	100	21	0	16.9	17.3	-3.4
72201	00	Z	100	26	1	21.5	35.0	27.6
72201	12	Z	100	25	0	29.4	39.1	25.9
72402	00	Z	100	30	0	16.3	26.9	21.3
72402	12	Z	100	29	0	13.0	35.7	33.2
74494	00	Z	100	27	0	30.3	34.6	16.7
74494	12	Z	100	29	0	21.4	39.4	33.1
78016	00	Z	100	1	0	0.0	28.0	-28.0
78016	12	Z	100	28	1	10.2	17.4	-14.1

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	26	0	10.5	11.1	3.5
DBBH	12	Z	500	23	0	15.9	16.3	3.7
DBBX	00	Z	500	1	0	0.0	6.0	6.0
DBLK	00	Z	500	1	0	0.0	0.0	0.0
DBLK	12	Z	500	2	0	18.5	27.6	-20.5
EHOA	00	Z	500	1	0	0.0	13.0	13.0
EHOA	12	Z	500	16	0	7.1	8.4	4.4
FNOR	00	Z	500	14	0	5.3	9.9	8.4
FNOR	12	Z	500	11	0	9.9	9.9	-0.2
FNOU	00	Z	500	16	0	12.6	12.6	0.0
FNOU	12	Z	500	13	0	8.9	9.1	1.9
FNPH	00	Z	500	12	0	10.9	11.0	1.7
FNPH	12	Z	500	11	0	6.7	9.3	-6.5
FNRS	00	Z	500	10	0	7.6	9.7	-6.0
FNRS	12	Z	500	10	0	6.8	14.5	-12.8
JBOA	00	Z	500	1	0	0.0	10.0	-10.0
JCCX	00	Z	500	1	0	0.0	2.0	2.0
JIVB	00	Z	500	1	0	0.0	2.0	2.0
LDWR	00	Z	500	31	0	10.5	10.8	-2.2
LDWR	12	Z	500	27	0	7.3	10.5	-7.6
OXVH2	00	Z	500	17	0	9.9	12.5	-7.6
OXVH2	12	Z	500	18	0	14.9	19.7	-12.9
OXYH2	00	Z	500	18	0	15.8	19.9	-12.1
OXYH2	12	Z	500	18	0	12.8	19.7	-15.0
RS	00	Z	500	1	0	0.0	7.0	-7.0
UQYC	00	Z	500	1	0	0.0	28.0	-28.0
V2EZ	00	Z	500	12	0	32.8	43.5	-28.6
V2EZ	12	Z	500	8	0	7.3	15.4	-13.6
V2GH	00	Z	500	14	0	12.6	23.2	-19.5
V2GH	12	Z	500	12	0	14.0	19.6	-13.7
V2LV	00	Z	500	18	0	9.8	10.7	4.4
V2LV	12	Z	500	21	0	15.2	15.8	-4.6
WTEA	00	Z	500	1	0	0.0	14.0	-14.0
WTEU	00	Z	500	1	0	0.0	16.0	16.0
03953	00	Z	500	30	0	10.2	15.6	11.9
03953	12	Z	500	30	0	9.5	9.8	2.4
04018	00	Z	500	31	0	12.0	12.0	-0.6
04018	12	Z	500	30	0	8.7	10.0	-4.8
04220	00	Z	500	30	0	17.7	23.5	-15.5
04220	12	Z	500	29	0	15.5	20.0	-12.7
04270	00	Z	500	31	0	14.1	16.7	-8.9
04270	12	Z	500	30	0	14.6	19.8	-13.4
04339	00	Z	500	31	0	8.9	10.1	-4.9
04339	12	Z	500	29	0	14.2	15.4	-6.1
04360	00	Z	500	31	0	12.7	14.1	-6.1
04360	12	Z	500	27	0	14.2	17.5	-10.1
08001	00	Z	500	23	0	13.6	13.6	1.5
08001	12	Z	500	23	0	13.9	15.7	-7.5
08508	00	Z	500	28	0	8.3	8.3	-0.9
08508	12	Z	500	26	0	9.2	13.3	-9.7
08594	00	Z	500	1	0	0.0	5.0	-5.0
08594	12	Z	500	12	0	8.5	8.8	-2.4
60020	00	Z	500	31	0	8.9	11.5	7.3
60020	12	Z	500	30	0	7.8	8.1	2.4
71600	00	Z	500	26	0	9.6	11.2	-5.8
71600	12	Z	500	21	0	13.7	13.8	-1.8
72201	00	Z	500	27	0	6.4	9.6	7.2
72201	12	Z	500	26	0	8.8	10.2	5.1
72402	00	Z	500	30	0	7.6	11.4	8.5
72402	12	Z	500	30	0	14.5	16.0	6.9
74494	00	Z	500	30	0	15.4	15.5	1.5
74494	12	Z	500	30	0	8.6	9.3	-3.5
78016	00	Z	500	1	0	0.0	9.0	-9.0
78016	12	Z	500	28	0	20.5	24.7	-13.7

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	26	0	0	0.0	1.1	1.1
DBBH	12	V	100	21	0	0	2.3	-1.1	0.0
DBLK	12	V	100	5	0	0	1.9	-2.2	0.5
EHOA	00	V	100	1	0	0	2.4	2.7	4.8
EHOA	12	V	100	14	0	0	2.4	1.1	0.0
FNOR	00	V	100	13	0	0	2.0	-3.1	-1.7
FNOR	12	V	100	10	0	0	3.4	-2.4	-0.5
FNOU	00	V	100	15	0	0	2.7	-1.6	-1.6
FNOU	12	V	100	13	0	0	3.3	-0.3	-1.6
FNPH	00	V	100	11	0	0	2.3	-1.1	-1.7
FNPH	12	V	100	11	0	0	4.0	0.9	-2.3
FNRS	00	V	100	10	0	0	2.9	-1.0	0.7
FNRS	12	V	100	9	0	0	3.1	-0.3	0.4
JBOA	00	V	100	1	0	0	3.1	0.1	-1.1
JCCX	00	V	100	1	0	0	3.1	0.7	2.0
LDWR	00	V	100	31	0	0	2.2	0.6	0.5
LDWR	12	V	100	28	0	0	1.8	0.2	0.3
OXVH2	00	V	100	16	0	0	1.6	-0.7	0.5
OXVH2	12	V	100	17	0	0	2.3	-1.1	-0.4
OXYH2	00	V	100	17	0	0	1.3	-0.4	1.0
OXYH2	12	V	100	16	0	0	1.3	-1.0	-0.2
RS	00	V	100	1	0	0	1.7	-0.9	-0.1
UQYC	00	V	100	1	0	0	1.7	1.3	0.2
V2EZ	00	V	100	12	0	0	2.7	-0.9	0.0
V2EZ	12	V	100	8	0	0	1.6	0.0	-0.6
V2GH	00	V	100	13	0	0	1.6	0.3	0.2
V2GH	12	V	100	11	0	0	2.9	-1.4	-1.3
V2LV	00	V	100	15	0	0	3.4	-2.0	0.8
V2LV	12	V	100	17	0	0	2.2	-1.0	-0.2
WTEA	00	V	100	1	0	0	3.3	-0.3	-2.4
WTEU	00	V	100	1	0	0	3.1	1.6	0.4
03953	00	V	100	30	0	0	2.4	1.5	1.4
03953	12	V	100	30	0	0	2.3	-0.6	1.5
04018	00	V	100	31	0	0	1.7	-0.9	0.1
04018	12	V	100	30	0	0	1.7	-1.1	0.6
04220	00	V	100	30	0	0	1.7	-0.4	1.4
04220	12	V	100	30	0	0	1.6	-0.5	0.4
04270	00	V	100	31	0	0	1.2	-1.5	1.3
04270	12	V	100	30	0	0	2.7	-1.0	0.1
04339	00	V	100	30	0	0	2.6	0.6	0.4
04339	12	V	100	30	0	0	1.6	-0.2	0.3
04360	00	V	100	31	0	0	1.5	-0.8	1.6
04360	12	V	100	27	0	0	1.7	-1.3	0.7
08001	00	V	100	21	0	0	3.7	0.4	1.5
08001	12	V	100	23	0	0	1.6	-0.4	0.7
08508	00	V	100	29	0	0	3.2	1.4	0.1
08508	12	V	100	27	0	0	2.7	-0.2	0.1
08594	00	V	100	1	0	0	1.8	-5.8	0.2
08594	12	V	100	11	0	0	1.8	-0.1	-0.1
60020	00	V	100	30	0	0	5.0	-0.6	1.1
60020	12	V	100	28	0	0	2.7	0.6	-1.4
71600	00	V	100	26	0	0	3.6	-0.1	0.8
71600	12	V	100	21	0	0	3.1	0.0	-0.3
72201	00	V	100	25	0	4	1.7	1.8	3.2
72201	12	V	100	23	0	0	3.8	1.0	1.1
72402	00	V	100	22	0	0	2.3	-0.9	-0.1
72402	12	V	100	26	0	0	3.8	-2.8	-0.2
74494	00	V	100	27	0	0	2.4	-0.6	0.2
74494	12	V	100	29	0	0	2.1	-0.1	0.1
78016	00	V	100	1	0	0	3.8	2.6	-10.6
78016	12	V	100	28	0	0	3.8	1.4	0.9

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: July, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	26	0	0	0.0	1.5	0.8
DBBH	12	V	500	22	0	0	3.1	-0.1	-1.0
DBBX	00	V	500	1	0	0	2.6	0.1	-0.8
DBLK	00	V	500	1	0	0	2.6	1.1	-3.6
DBLK	12	V	500	2	0	0	2.6	-0.3	-0.8
EHOA	00	V	500	1	0	0	2.6	7.4	4.7
EHOA	12	V	500	16	0	0	2.6	0.2	1.6
FNOR	00	V	500	14	0	0	3.4	0.3	-0.3
FNOR	12	V	500	11	0	0	3.2	0.6	0.7
FNOU	00	V	500	15	0	0	4.1	-1.0	-2.0
FNOU	12	V	500	13	0	0	4.3	-0.6	-0.7
FNPH	00	V	500	12	0	0	2.9	-0.1	-0.5
FNPH	12	V	500	11	0	0	2.6	-1.0	-1.2
FNRS	00	V	500	10	0	0	3.0	1.3	-2.2
FNRS	12	V	500	11	0	0	3.9	-0.5	-1.0
JBOA	00	V	500	1	0	0	2.4	-1.6	-1.9
JCCX	00	V	500	1	0	0	2.4	-0.5	2.8
JIVB	00	V	500	1	0	0	2.4	-0.1	-1.4
LDWR	00	V	500	31	0	0	3.4	0.2	0.2
LDWR	12	V	500	27	0	0	1.8	0.7	0.8
OXVH2	00	V	500	17	0	0	2.3	-1.8	1.4
OXVH2	12	V	500	18	0	0	4.4	1.0	1.5
OXYH2	00	V	500	18	0	0	3.9	-1.2	0.8
OXYH2	12	V	500	18	0	0	2.2	-0.5	-0.2
RS	00	V	500	1	0	0	3.4	-1.5	-1.0
UQYC	00	V	500	1	0	0	3.4	2.8	2.2
V2EZ	00	V	500	12	0	8	6.8	1.8	-0.2
V2EZ	12	V	500	8	0	0	6.1	-0.8	0.5
V2GH	00	V	500	14	0	0	6.1	-1.7	0.1
V2GH	12	V	500	11	0	0	3.1	-1.2	-0.5
V2LV	00	V	500	18	0	0	2.2	-1.7	0.0
V2LV	12	V	500	18	0	0	2.5	-0.6	-1.0
WTEA	00	V	500	1	0	0	2.7	0.2	-0.2
WTEU	00	V	500	1	0	0	2.8	1.8	1.2
03953	00	V	500	30	0	0	2.7	0.2	0.2
03953	12	V	500	30	0	0	2.6	-0.6	-0.4
04018	00	V	500	30	0	0	2.7	-1.0	-0.4
04018	12	V	500	29	0	3	3.0	-0.1	-0.1
04220	00	V	500	29	0	3	3.6	-0.3	3.4
04220	12	V	500	29	0	0	4.9	0.1	0.3
04270	00	V	500	31	0	0	3.6	-1.0	2.2
04270	12	V	500	30	0	0	3.9	-0.9	0.8
04339	00	V	500	30	0	0	4.0	1.4	0.2
04339	12	V	500	29	0	0	3.4	-0.6	-0.6
04360	00	V	500	31	0	0	3.1	-0.1	0.2
04360	12	V	500	27	0	3	4.0	1.0	-1.1
08001	00	V	500	23	0	0	2.4	0.6	1.0
08001	12	V	500	23	0	0	2.8	-1.2	0.3
08508	00	V	500	28	0	0	3.8	0.5	-0.1
08508	12	V	500	26	0	0	2.2	0.0	-0.9
08594	00	V	500	1	0	0	2.8	-1.2	-1.9
08594	12	V	500	12	0	0	2.8	-0.2	0.3
60020	00	V	500	31	0	0	3.0	2.2	1.1
60020	12	V	500	29	0	0	4.3	0.8	0.0
71600	00	V	500	26	0	0	4.8	0.4	0.4
71600	12	V	500	20	0	0	3.7	0.1	0.7
72201	00	V	500	26	0	3	2.8	0.2	-0.2
72201	12	V	500	24	0	0	2.4	-0.2	0.0
72402	00	V	500	21	0	0	2.4	-0.9	0.2
72402	12	V	500	29	0	0	2.6	-6.6	1.8
74494	00	V	500	30	0	0	2.7	0.1	0.1
74494	12	V	500	30	0	0	3.2	0.5	1.8
78016	12	V	500	28	0	0	3.9	-0.1	0.5

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45